

The effects of collaborative and non-aggressive communication on the relationship between the division of labor(s) and marital quality for dual-earner couples

BY

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## ABSTRACT

Guided by equity theory and the distributive justice perspective, this study examined the explanatory role of positive communication behaviors (i.e., collaborative communication and non-aggressive communication) when looking at perceptions of fairness in the divisions of family labors (i.e., household, childcare, and wage labor) and marital quality. These relationships were tested intrapersonally and interpersonally as dyadic data from 120 dual-earner married couples with young children were analyzed. Data were collected using a planned missing data design. The planned missing values were imputed using Multiple Imputation (MI).

Direct effects associated with collaborative communication indicated that greater perceived fairness in the divisions of household and childcare labor were associated with greater own use of collaborative communication by husbands and wives. Greater perceived fairness in the division of wage labor was associated with greater own use of collaborative communication for wives, but not for husbands. Additionally, greater use of collaborative communication was associated with greater own and partner assessments of marital quality for husbands and wives.

Direct effects associated with non-aggressive communication indicated greater husband perceptions of fairness in the division of household labor were associated with greater husband use of non-aggressive communication, and greater husband and wife perceptions of fairness in the division of wage labor were found to predict greater own use of non-aggressive communication. In most situations, greater use of non-aggressive communication by both husbands and wives lead to greater own and spouse assessments of marital quality. The exceptions concern household and childcare labor wherein husbands' use of non-aggressive communication did not have an effect on wives' assessment of marital quality.

Indirect effects indicated that collaborative communication is a mechanism by which husbands' and wives' perceptions of fairness in the divisions of household and childcare labor influenced their own and their partners' assessments of marital quality. Concerning fairness in the division of wage labor, only wives' perceptions of fairness were indirectly linked to wives' marital quality through their own use of collaborative communication. Results concerning non-aggressive communication indicated that only in the context of wage labor were husbands' and wives' perceptions of fairness related to their assessments of marital quality through non-aggressive communication.

This study highlighted the importance of studying communication as an explanatory variable. This research can be utilized by scholars, counselors, and dual-earner married couples to better understand how fairly dividing family labors and using positive communication behaviors can enable more satisfying marriages.

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## CHAPTER I

The production and maintenance of family is a labor-intensive process (Perry-Jenkins, Pierce, & Goldberg, 2004). Such labors include, but are not limited to, laboring for pay, laboring to maintain the home, and laboring to raise children. While conceptions of the “traditional family” suggest that this labor be divided along gender lines wherein a male breadwinner is responsible for laboring for pay and a female homemaker is responsible for laboring to maintain the home and laboring to raise children, these idealistic views about how families ought to operate are not necessarily the norm or even reproducible in the twenty-first century (Haddock & Bowling, 2001). In fact, the notion that “traditional families” represent the largest proportion of families in the United States has not been the case for some time. In 1968, both traditional-earner families and dual-earner families represented 45% of all married families in the U.S. (Hayghe, 1981). By 1978, dual-earner families had become the largest segment of U.S. families with 51% indicating they were dual-earner and only 33% indicating they were traditional-earner (Hayghe, 1981). This number has continued to grow, and in 2008, 80% of married/partnered employees were part of dual-earner couples (Galinsky, Aumann, & Bond, 2009). Thus, the idea that the transition of women into the workforce represents a relatively “new” trend is not accurate. In effect, it works to obscure the truth that women have been making gains in the public sphere for some time, and that their efforts have not necessarily been met with increased male participation in the private sphere (Coltrane, 2000; Gornick & Meyers, 2005).

Part of the problem comes from the labeling and gendering of separate spheres. As a result of the industrial revolution and the movement towards paid labor rather than an agrarian lifestyle, labors began to be classified as those that were paid (i.e., the masculine public sphere) and those that were unpaid (i.e., the feminine private sphere; Haddock & Bowling, 2001). As



Haddock and Bowling (2001) indicate, one of the far-reaching implications of the industrial revolution was the creation of an ideology of domesticity, which “often does not reflect many people’s lives, but [it] has a powerful influence in shaping cultural expectations and practices that affect the lives of all Americans” (p. 93). For example, the ideology of domesticity implies that public sphere laborers have spouses in the home who care for all aspects of family life, that men are best-suited for public sphere labor and women are best-suited for private sphere labor, and that children need attention from their mothers in order to thrive (Williams, 2000).

While the movement of women into the workforce might seem to critique this ideology of domesticity, the truth of the matter is organizations still operate under the assumption that difficulties balancing the demands of work and life are an individual’s problem and not an organization’s problem (Ashcraft, 2005). In other words, it is assumed that organizations do not need policies that enable workers to find a better balance because work life balance is not something organizations enable; it is something individuals have to achieve.

Additionally, while individuals might no longer assume that women are biologically better-suited to care for the home and children, women are still responsible for performing the majority of these unpaid labors (Coltrane, 2000; Shelton & John, 1996). In fact, women still perform the majority of household and childcare labors even though, “men today view the ‘ideal’ man as someone who is not only successful as a financial provider but is also involved as a father, husband/partner, and son” (Aumann, Galinsky, & Matos, 2011, p. 1). Recent research shows that since 1992, the number of fathers who indicate that their wives are the primary caregiver for their children has fallen from 58% to 46% (Galinsky et al., 2009). Wives corroborate this finding as the number of women who indicate they are the primary caregiver for their children has fallen from 73% in 1992 to 66% in 2008 (Galinsky et al., 2009).

The findings concerning the sharing of housework, however, are less optimistic. In 1992, 40% of husbands said housecleaning tasks were shared equally in their households. By 2008, the number of husbands claiming an equitable division of household labor had risen to 53% (Galinsky et al., 2009). Unfortunately, women did not perceive any more equality in the performance of household labor over the same 16 year period. In 1992, 73% of women said they did most of the housework, and in 2008, 71% of women said they did most of the housework (Galinsky et al., 2009). While the divisions of family labor are not yet equal, these findings should not be taken lightly as they do imply that husbands today are taking on more parenting responsibilities than men have in the past. Additionally, men do report doing more housework, even if women still report doing a greater share of the housework than their husbands.

So, while fathers appear to have increased their childcare labors, there is no indication that they are currently taking on their fair share of household duties. In two reviews of the literature, Shelton and John (1996) and Coltrane (2000) both indicate that, overall, less housework is being performed now than has been in years past, and that women still perform about twice as much household labor as men. In other words, the amount of household labor men perform has risen, the amount of household labor women perform has fallen, yet women and men are not close to equally sharing household labors (even when they are both engaged in paid labor). Data from the Bureau of Labor Statistic's Annual Time Use Survey (ATUS) corroborates these somewhat outdated findings. For the years 2007-2011, the ATUS found that in married couples with own household children under the age of 18, 50% of full-time employed mothers (~0.81 hours/day) and 64% of part-time employed mothers (~1.15 hours/day) reported engaging in some form of housework, other than cooking and doing dishes, on an average day. While half of all full-time employed mothers report doing housework, only 18% of full-time employed

fathers reported engaging in some form of housework (~0.23 hours/day) on an average day. Data for part-time employed fathers was not included because of the limited number of fathers who claimed to work part-time (Bureau of Labor Statistics, 2012a). So, not only are more wives than husbands performing household labor on an average day, but they are also spending more time doing that labor than their husbands.

As for childcare labor, 73% of full-time employed mothers (~1.24 hours/day) and 78% of part-time employed mothers (~1.80 hours/day) reported engaging in some form of care for children on an average day. This statistic can be compared with the 56% of full-time employed fathers (~0.86 hours/day) who reported doing the same (Bureau of Labor Statistics, 2012a). Again, more wives seem to be reporting engaging in childcare labor on an average day, and those wives tend to spend more time doing those tasks than their husbands.

In terms of the paid labor each individual performed, 70% of full-time employed mothers (~5.31 hours/day) and 56% of part-time employed mothers (~2.79 hours/day) reported engaging in some form of paid labor on an average day, and 74% of full-time employed fathers (~6.06 hours/day) reported engaging in some form of paid labor on an average day (Bureau of Labor Statistics, 2012a). Thus, while women averaged fewer paid labor hours than their husbands, the most recent ATUS results suggest that U. S. wives and mothers are still engaged in far more household and childcare labor hours than their husbands.

Some factors affecting this division of labor include women's employment, men's employment, earnings, education, ideology, marital status, and presence of children. When examining women's and men's employment, results generally show that women's employment hours have the strongest effect on women's and men's share of household labor (see Coltrane, 2000). As a woman performs more hours of paid labor, the number of hours of housework she

performs tends to go down and the number of household labor hours her husband performs tends to go up (Demo & Acock, 1993; Greenstein, 1996b). This is especially true if parents engage in shift labor and there is no real overlap in their employment hours (Presser, 1994). While men tend to perform more household and childcare duties when their wives work, the correlations between the number of paid labor hours a man engages in and the amount of household and childcare labor he performs are not as strong (see Coltrane, 2000). These findings suggest that the number of household and childcare labor hours a man performs is not dependent on the number of hours he works, but rather the number of hours his wife works. So, assume man A and man B both average 55 hours per week in paid labor. Man A's wife does not work, but man B's wife works 30 hours per week. The aforementioned results indicate that while both men engage in the same number of wage labor hours, man B would be more likely to perform more household and childcare labor hours than man A because his wife performs more wage labor hours than man A's wife.

In terms of earnings, Coltrane's (2000) review of the literature indicates that wives who make more money tend to share more equal divisions of household and childcare labor. This effect, however, is not consistently observed as studies of unemployed men (Brines, 1994) and at-home dads (Doucet, 2004) indicate that there are times when men do less housework (i.e., feminine tasks such as cooking, cleaning, laundry, etc.) even when they depend on their wives for a greater proportion of the total family income. The argument behind these observations holds that when men do not fulfill the breadwinner role, women more closely adhere to the homemaker role so as to protect her husband's sense of self-worth. It makes sense that men might perceive failure to adhere to the breadwinner role as slight to their masculinity, but it is also entirely possible that women imagine this slight, and make up for it without their husbands

actually experiencing feelings of failure. In this argument, breadwinning wives would feel less-feminine because they are not fulfilling their feminine role by caring for the family/home. Thus, women might increase their household and childcare labor hours to protect their own self-concept as well as the self-concepts of their spouses.

This goes to highlight the pervasive effect that gender roles have on the daily lives of women and men. A current feminine gender norm indicates that the modern woman is capable of being “superwoman” and simultaneously achieving great things at work and in the home (Wood, 2011). In other words, these women can “have it all.” This gendered norm sets women up for failure as it is impossible to be the “perfect” employee, wife, mother, daughter, friend, etc., simultaneously. Thus, as women try to be superwomen they are constantly met with feelings of inadequacy.

Education is another variable that affects the performance of wage, household, and childcare labors. Data from the U.S. Department of Education indicate that in 2008-2009 women earned 57% of all bachelor’s degrees and 60% of all master’s degrees (USDOE, 2010). The fact that women are obtaining bachelor and master’s degrees in such large numbers is part of the reason why couples make the decision to be dual-earner. Besides perhaps needing two wages to adequately provide for the family, women’s enhanced educational attainment has led to greater desires to achieve personal and professional success (Haddock, Zimmerman, Ziemba, & Curent, 2001). Therefore, women’s educational attainment is one of the reasons why women indicate they perform wage labor. By and large, women with more education tend to do less housework (see Coltrane, 2000). Men with more education, on the other hand, tend to do more housework (Presser, 1994).

A final group of important variables include ideology, marital status, and presence of children. Overall, when looking to gender ideology, research findings have shown that when men and women both have more egalitarian gender ideologies, they are more apt to share responsibility for the labors required to produce and maintain a family (Greenstein, 1996b; Ishii-Kuntz & Coltrane, 1992; Presser, 1994). Additionally, marital status plays a role in the division of labor, specifically the division of household labor. In their review of the literature on the division of household labor, Shelton and John (1996) indicate that married women spend a significantly larger proportion of their time performing household tasks than cohabitating women, and that single and cohabitating men perform more housework than married men (Shelton & John, 1993). Thus, being married results in an increase in housework for women and a decrease in tasks for men. This is especially true in the households of first-married individuals as remarried families tend to share household duties more equitably (Demo & Acock, 1993; Ishii-Kuntz & Coltrane, 1992; Presser, 1994).

Finally, the transition to parenthood is one that normally works to solidify traditional roles in the family. Typically when children enter the family, men increase their wage labor hours and women increase their household and childcare labor hours (Sanchez & Thomson, 1997). Part of this might be a function of maternity leave wherein women leave the workforce directly following the birth of a child and as such are not engaged in wage labor as the family adjusts to the introduction of a child to the family. During these weeks where the woman is absent from the public sphere, she might take on more parenting and household tasks as she is the one present in the home around-the-clock. Once she returns to work, there is no guarantee that the tasks she has been doing while on maternity leave will be equitably split with her

husband. Thus, as a function of her maternity leave, she might get stuck with family labor tasks simply because she was home with the child when the tasks first became required.

As indicated by this discussion of variables, many factors influence the decisions concerning how and why different divisions of labor(s) are implemented in modern families. While there is not one correct formula for the optimal balance of wage, household, and childcare labor duties, the implications of not finding some form of “balance” are far reaching. For example, Shelton and John (1996) indicate that labor force participation, wages, marital/family satisfaction, and psychological well-being are all consequences of the division of household labor. Their review of the literature indicates that the more hours a woman spends on household labor, the lower her average earnings. The implication of this finding is that women work part-time and in lower paid jobs that are able to accommodate their need for time to complete household and childcare labors. Shelton and John (1996) also highlight that both husband’s and wife’s marital satisfaction is highest when they perceive that the husband is doing an equitable proportion of household labor.

The literature also indicates that housework performed by women, specifically the performance of household and childcare tasks, is associated with increased marital conflict (Perry-Jenkins & Folk, 1994) and depression (Glass & Fujimoto, 1994). The study by Glass and Fujimoto (1994) finds this same relationship for men, such that men who perform more household labor tend to report higher levels of depression. A possible reason for these findings is that the performance of household labor is stigmatized such that whoever is performing it feels burdened and disempowered because the stereotypically feminine connotations connected to household labor still exist. In other words, it does not matter if you are male or female, housework is seen as an unfair burden placed on whoever is required to do it.

These influences on and outcomes of the division of labor(s) in dual-earner couples have both intrapersonal and interpersonal implications for the individuals who must find a way to perform all of the labors necessary to care for their families. Furthermore, with divorce rates holding steady around 50% (CDC, 2013), finding ways to ensure that families have the skills necessary to cope with the stresses and strains they will inevitably experience is of the utmost importance. Thus, the purpose of this study is to investigate the relationship between perception of fairness in the division of family labor(s) (i.e., paid labor, household labor, and childcare labor) and marital quality. This study will enhance what is known about the relationship between these two variables by examining how positive communication behaviors (i.e., collaborative communication and non-aggressive communication) help to explain the relationship.

To achieve this goal, the following chapter will define family, discuss the labors required to build and maintain a family, and discuss the difficulties associated with being part of a dual-earner couple. Next, the chapter will highlight the divisions of wage, household, and childcare labors, and follow up those sections with a discussion of Equity Theory, specifically examining the distributive justice perspective as it relates to marital divisions of labor. These discussions will be followed with sections on collaborative and non-aggressive communication. Within each section on communication, hypotheses will be advanced. Finally, a section on the dyadic nature of marital interaction will be included. This section will include several dyadic hypotheses for investigation.



## **CHAPTER II**

### **Literature Review**

#### **Family, Labor, and the Dual-Earner Couple**

There is no single, all-encompassing definition of “family” (Settles, 1999). Individuals are bound to have their own nuanced conceptualizations of the term based upon their lived experiences. Defining the term, however, is important in any study because it enables the researcher to paint a picture of who is in the family and who is not (Segrin & Flora, 2011).

Current research on marriage and family indicates that Americans view family as an integral part of their lives (Pew Research Center, 2010, November 18). For example, a study conducted by the Pew Research Center (2010, November 18) indicated that 76% of adults surveyed said that their families were the most important things in their lives. While family was overwhelmingly listed as an important facet of life, participants were in agreement that marriage was not the only way to achieve “family.” When asked which family configurations should be accepted as valid forms of family, 86% of the participants indicated that single parents and their children represent a family, 80% felt that cohabitating couples and their children should be called family, 63% indicated that gay and lesbian couples and their children represented an acceptable family form, and 88% said that married couples without children were an acceptable family arrangement (Pew Research Center, 2010, November 18). Thus, the presence of children appears to be an important factor when defining “family.” When couples are childless, however, marriage seems to become a requirement for obtaining the familial title.

The marriage landscape in the U.S. has changed significantly in the last 50 years. First, there are currently fewer adults in the U.S. who are married (51%) than in centuries past; in the 1960s 72% of adults were married (Cohn, Passel, Wang, & Livingston, 2011, December 14; Pew Research Center, 2010, November 18). Fewer adults over the age 18 are married today because

individuals are delaying first marriage. According to the June 2010 Current Population Survey, the median age at first marriage was 26.1 years for women, and 28.2 years for men (Elliot, Krivickas, Brault, & Kreider, 2012). These figures are up from about 21 years for women and 24 years for men in 1960 (Elliot et al., 2012). Furthermore, the larger cultural acceptance of what have been termed “non-traditional” family forms (e.g., gay and lesbian families, single parent families, etc.; Cohn et al., 2011, December 14), means that it is no longer possible to point to the traditional family composed of a husband, wife, and their children as the definitive example of what it means to be a family. Because of the acceptance of these many different and equally valid types of families, it is necessary to define family by examining the many dimensions that can describe a single family.

**Family.** Family can be described by its structure (who is inside and who is outside the family), interaction (who talks to whom and how these conversations create close interpersonal bonds), and/or function (the specific tasks that individuals within a family perform to maintain the family) (Segrin & Flora, 2011). Each of these definitions highlights an important part about what it means to enact family, and each is salient in different situations. When examining how divisions of labor affect the performance of family, the functional definition of family is important to consider. As such, it is the definition that will be used in this study.

When defining family functionally, researchers look to the specific tasks that individuals within the family unit perform to meet the basic needs of the family. Traditionally, research has highlighted the important parental tasks of socializing and nurturing children (Segrin & Flora, 2011). Socializing includes directly or indirectly teaching young children (and adult family members alike) how to function in society (Maccoby, 1992; Peterson & Rollins, 1987). The successful socializing of children is thought to have happened when children are able to avoid

behaving in deviant ways, perform work that enables the successful functioning of the self and the family, build interpersonal relationships with others, and raise functioning children of their own (Maccoby, 1992). The functions parents teach children via socialization processes can include, but are not limited to, manners, social skills, values, expectations, and work ethic (Peterson & Hann, 1999; Peterson & Rollins, 1987). In the end, effective socialization of children should result in individuals who are able to competently function in an ever-changing adult world (Maccoby, 1992; Peterson & Hann, 1999; Peterson & Rollins, 1987).

While parents are expected to socialize their children, they are also expected to nurture them. Nurturing includes providing for the care, emotional support, and financial support of family members. In other words, when nurturing children, parents are expected to perform household, childcare, and wage labor(s) so as to enable their children every opportunity to be successful. The following sections will explain the various types of labor that individuals might perform when nurturing the family.

**Labor.** When examining family via its functions, it becomes clear that there are many different types of labor required to produce and maintain a family. Those labors include household labor, caring labor, and wage labor.

***Household labor.*** The production and maintenance of a family requires household labor. Specifically, the provision of care and nurturance for a family requires the completion of many mundane tasks such as shopping for groceries, preparing meals, cleaning the home, tending to the lawn, maintaining vehicles, paying bills, etc.

For example, a family cannot meet its members' needs for survival without providing food. While a wage needs to be earned in order to purchase food (or labor needs to be performed to produce food), household tasks need to be performed in order to meet the needs of the family.

Before food can be provided to family members, someone has to purchase the food, prepare the food, and serve the food. Then, once sustenance needs have been met, someone must clean up. In essence, the household labor required to produce and maintain a family is an important and necessary aspect of family life.

***Caring Labor.*** Another form of labor important to the production (and/or maintenance) of family is caring labor. Traditionally speaking, caring labor is conceptualized as the labor that parents put into nurturing their children (Segrin & Flora, 2011), however, caring labor can also be thought of as the labor an individual puts into caring for his/her partner, parent, grandparent, sibling, etc. For the purposes of this study, caring labor will be identified as “childcare” labor because the caring tasks of interest are all related to caring for familial children. Investigating other realms of caring labor would undoubtedly prove fruitful for researchers.

***Wage labor.*** Finally, the production of family requires wage labor. The nurturing function of family indicates that family is performed, in part, through the provision of financial support. Thus earning a wage so as to provide a home, food, safety, access to education, access to recreation, etc., for family members is an essential part of enacting family.

**The dual-earner couple.** The three forms of labor listed above do not represent all the types of labor required to enact family, but they do represent forms of labor that married parents with young children would have to engage in regularly in order to maintain a family. While all parents must engage in various labors to ensure the nurturance of and care for their families, parents in dual-career and dual-earner couples face additional challenges as both partners in these families perform labor in both the public sphere and the private sphere.

Dual-career couples are couples wherein both partners pursue the development of a career alongside the development and maintenance of a marriage and family (Aryee, Luk, Leung,

& Lo, 1999; Burley, 1995). The use of the term “career” does not reflect current theorizing about careers wherein each individual has one career that is inclusive of all the forms of work that the individual has done throughout his/her life (Inkson, 2007). Instead, the term “career” is reflective of the notion that both husband and wife engage in professional forms of labor. Partners in dual-career couples are each employed full-time and hold positions that are typically knowledge-based (e.g., management, law, medicine, and higher education).

Dual-earner couples can be differentiated from dual-career couples in that dual-earner couples do not necessarily have both partners working full-time and in professional positions (Aryee et al., 1999). Dual-earner couples can have both individuals working full-time, both individuals working part-time, or one individual working full-time and the other working part-time. Likewise, dual-earner couples can have both partners working in blue-collar (e.g., manufacturing, mining, and construction) or pink-collar (e.g., restaurant server, administrative assistant, hair dresser, nurse, and teacher) occupations, or they can have one partner in a white-collar occupation (e.g., management, professional, knowledge-based) and one in a blue- or pink-collar occupation (Aryee et al., 1999). While dual-career couples typically earn higher family incomes and possess more education (i.e., are of a higher class), dual-earner couples (i.e., working class couples) are more likely to work opposite shifts and thus have less time to share with one another and their children (Goldberg & Perry-Jenkins, 2004; Presser, 1989).

For the purposes of this investigation, the term “dual earner” will be used, as the term can subsume dual-career couples. Furthermore, within this investigation, the term “dual earner” describes any heterosexual married couple wherein both partners engage in public sphere labor on either a full- or part-time basis. While wage labor is an important form of labor that both members of dual-earner couples engage in, household and childcare labors are also required to

maintain family, and when both partners work outside the home, coming to terms with how these labors will be divided can be difficult for a couple.

One of the primary challenges that couples face when deciding how to divide wage, household, and childcare labor is the fact that many Americans hold contradictory views on how modern families ought to function. Individuals simultaneously endorse the ideas that women ought to be able to work and create careers for themselves and that men should be able to financially support a family before they decide to get married (Pew Research Center, 2010, November 18). Thus, people generally accept the idea that a woman might want to work outside of the home, but those same people are not so quick to endorse a lifestyle wherein men are not the primary wage earner. While Americans still seem to enjoy the idea that men should be the familial breadwinner, the ability of families to thrive on a single income is becoming less and less possible (Haddock, Zimmerman, Lyness, & Ziemba, 2006). In fact, the most recent U.S. Census figures indicate that both partners engage in wage labor in 58.5% of all married couples with children under the age of 18 (Bureau of Labor Statistics, 2012b). When looking to all married couples with children between the ages of six and 17, 62.9% of couples are dual-earner, and when looking to couples with only very young children (i.e., all children under age six), 53% are dual-earner (Bureau of Labor Statistics, 2012b). Thus, no matter the age of the children, over half of all married couples with children in the U.S. have two partners who engage in wage labor.

Being dual-earner brings about other stressors not necessarily found in single-earner families. For example, dual-earner couples need to seek out employment that can enable them to live in the same geographic area, seek out appropriate careers that enable long-term career goals to be met, coordinate schedules so as to allow for both parents to enact wage, household, and childcare labor, and make time for individual leisure and self-care activities (Smit, 2001).

Thus, for the purposes of this investigation, family is defined in part by function and in part by structure. When looking to the functional definition of family, this study assumes that familial membership requires the performance of wage, household, and caring labors—specifically childcare labor. In terms of a structural definition, this study limits the types of families investigated to only include full- or part-time employees who are part of heterosexual married couples with young children (i.e., children under the age of 12). This structural definition should not be read as an indication of what I believe ought to be considered family. Rather, this structural definition is applied solely to enable statistical control. The difficulty and cost associated with soliciting an adequate number of cohabitating couples with children and gay and lesbian couples with children prevented the inclusion of these couples in this study. Future research should aim to include these family types in similar investigations.

Now that the terms “family,” “household labor,” “childcare labor,” “wage labor,” and “dual-earner couple” have all been conceptually defined within this study, past research concerning the division of family labor(s) will be highlighted. These labors are organized in terms of public sphere labor (i.e. wage labor) and private sphere labor (i.e., household labor and childcare labor).

### **Division of Family Labor(s)**

As the previous discussion indicated, many different types of labor need to be performed to enable the production and maintenance of family. The labors that need to be performed are located in both the public and the private spheres. While traditional conceptualizations of family indicate that it is the duty of the husband to perform public sphere labor and the duty of the wife to perform private sphere labor, dual-earner couples challenge this conceptualization as both partners work for pay in the public sphere. Thus, one would assume that if both partners in dual-earner couples share the responsibility of public sphere labor, that they would also share the

responsibility of private sphere labor. While there are some trends towards higher participation in private sphere labor by males, this labor still tends to be female-dominated even when women are working full-time outside of the home (Bianchi, Milkie, Sayer, & Robinson, 2000; Coltrane, 2000; Mikula, 1998). Noting the fact that more female participation in the public sphere has not resulted in a matched increase of male participation in the private sphere, it becomes even more important to understand how dual-earner couples divide the labors they must engage in to produce and maintain family.

In the U.S., dual-earner couples account for 58.5% of all married families with children under the age of 18 (Bureau of Labor Statistics, 2012b). Families that adhere to the “traditional” model with a wage-earning father and a stay-at-home mother account for 30.4% of families, and families with a wage-earning mother and a stay-at-home father account for 6.9% of families (Bureau of Labor Statistics, 2012b). Thus, the dual-earner model is the dominant model when examining the wage labor patterns of Americans who are married with children.

While census data indicates that dual-earner couples are the new norm, those figures do not provide any indication as to why this particular pattern seems to have displaced the traditional models. Haddock et al. (2001) indicate that the shift toward dual-earning families has occurred because it is now an economic necessity for families to have two wage earners in order to adequately provide for a family, and because women have desires to achieve both fulfilling personal and professional lives. Combine this with data indicating that more women than ever are graduating from college (Galinsky et al., 2009), and it only stands to reason that women would want to make use of their educations. While multiple justifications exist for the rise of the dual-earner families, answering “why” these family-types have come about does not necessarily



address how these families functionally enact family. The following sections will briefly outline the literature focused on the division of public and private sphere labor in dual-earner families.

**Division of public sphere labor.** Public sphere labor, or the labor accomplished outside of the home in order to earn a living wage, has traditionally been gendered masculine. This is not to say, however, that there have not always been women working. The notion of a stay-at-home-mother who is solely responsible for the care of the home and the upbringing of children is a classed image; many lower class women have always had to work. In fact, modern proponents of traditional family forms (with a male breadwinner and female care provider) typically argue that middle- and upper-class women should stay home while mothers on government assistance should find jobs and start providing for their families (Haddock et al., 2001). Thus the notion of a traditional family comprised of a breadwinning father and an at-home mother is not necessarily a standard all people in all economic groups can access.

Like the women who have always had to work to support their families, women have also entered the public sphere, en masse, during several phases of American history. For example, during WWII, women's work was needed to keep factories operating and producing the necessary supplies for the war effort (Runté & Mills, 2006). In fact, women's public sphere labor has traditionally been accepted and lauded during periods of time where her public sphere labor would directly help her care for her family (Runté & Mills, 2006). During the phases of history where women's work has been celebrated, it was assumed that women were not going into the public sphere to earn money and develop a career; women were going into the public sphere to enact care for their families. When that care was no longer needed, women were traditionally asked to return to the home.

While middle-class women have not always been readily “accepted” in the public sphere, the necessity of two wages to adequately provide for a family has enabled the rise of dual-earner couples (Haddock et al., 2006). With both partners working, however, questions arise concerning how much work each partner performs, when and where that labor is performed, and who cares for the children while paid labor is being enacted. When looking to how dual-earner couples in the U.S. balance public sphere labor, the most recent estimates of time use (from 2003-2006) indicate that 43% of married mothers and 88% of married fathers work full-time, with full-time being defined as working 35 hours per week or more (Bureau of Labor Statistics, 2008). Women are more likely than men to work fewer hours (even when employed full-time), mostly because they have a greater likelihood of being absent from work. This figure reflects the fact that women, rather than men, are more likely to take time away from work to care for sick children and/or provide care to children unable to attend school, daycare, etc. (Bureau of Labor Statistics, 2008). Note that as women take time away from work to care for sick children (or account for hiccups that occur in other situations such as an absent daycare provider), they are also likely limiting their ability for advancement in their organizations. Thus, if the wife is the one is expected to be most “flexible” when dealing with childcare issues, she might be stunting her organizational advancement opportunities so as to provide childcare labor for her family.

Additionally, technological advances have made the division of wage labor more difficult for couples to manage as technology has enabled the blurring of boundaries between work and family time (Clay, 2005). Because laptop computers and smart phones have so readily enabled individuals to check their emails and remain in constant contact with their bosses and organizational peers, the boundaries between work and home have become increasingly blurred.

**Division of private sphere labor.** One of the factors that makes dividing public and private sphere labor so complicated is the fact that workplace cultures and norms seem to cling to the notion that paid employees have a full-time adult at home who is responsible for childcare and household responsibilities (Haddock et al., 2001). Not only has this never been true for certain family types (e.g., single parent families, lower income families, etc.), but it is certainly not true for the majority of married Americans with children today. While women have made strides in terms of access to and success in the public sphere, women's increase in wage labor hours has not been met by a matched increase in the number of housework and caring labor hours performed by their partners (Gornick & Meyers, 2005; Hook, 2006).

The necessity of having both parents work can be problematic when considering gender inequalities that still exist in the U.S. For example, upon the birth of a child, many women leave work for months or years, incurring a type of "mommy-tax" (Crittenden, 2001). The "mommy-tax" indicates that women earn less money over the course of their careers because either they shift their focus away from wage labor in order to adequately care for their families, or their organizations assume they will do this and as such penalize them for having children. Additionally, many women shift to part-time work which is lower paid, has access to fewer benefits, and generally provides less job security (Gornick & Meyers, 2005).

It appears that the gender gap in household and caring labor has diminished in recent years, as reports indicate that men's share of household labor has increased minimally and women's share has decreased markedly (Bianchi, 2000; Bianchi et al., 2000; Hook, 2006). While men have increased the amount of work they do, the larger share of work is actually being accomplished outside of the home. For example, families are more apt to eat out, hire help cleaning, and take laundry to the drycleaners than they were in years past (Bianchi et al., 2000).

Additionally, non-necessary tasks like ironing may have stopped, especially with advances in technology that have enabled “wrinkle-free” fabrics, etc.

***Division of household labor.*** Differences in the division of household labor are more pronounced when children are present in the home (Sutor, 1991). In other words, couples are balanced in what they do to care for the home both before they have children and after their children have been raised and left the home. Thus, there appears to be something about parenting that inspires individuals to adopt more traditional roles in the household.

Satisfaction with the division of household labor has been reported to have a positive effect on perceptions of marital happiness and a negative effect on marital conflict for both men and women (Sutor, 1991). Research has shown that wives’ satisfaction with the division of household labor across the relationship life cycle is U-shaped such that in early and late phases of one’s relationship (i.e., when kids are not present), women are more satisfied with how work is divided. When children are present (i.e., the middle of a relationship), women tend to be less satisfied with the division of labor. Also, during times when contributions between husbands and wives are more equitable (e.g., before children arrive in the home and after children leave the home), scores for marital happiness tend to be higher for women (Sutor, 1991).

***Division of childcare labor.*** One of the major problems that dual-earner parents face is determining who should care for the children and how that care should be provided (Gornick & Meyers, 2005). Split-shift parenting occurs when parents trade off wage and childcare labor roles (Gornick & Meyers, 2005). For example, when the wife is working, her husband is caring for the children, and as soon as she comes home, she takes over childcare duties so her husband can go to work. Split-shift parenting leads to higher risks of divorce and less positive levels of parent-child relations (Gornick & Meyers, 2005). In her research on parents’ use of shift labor to

accomplish family goals, Presser (1989) states, “Women generally are the adapters who arrange their work hours around those of their husbands rather than vice versa [...] Men are acceptors: they are willing to care for children when mothers are employed” (p. 531). Women are much more likely than men to work nonstandard hours when they have a pre-school aged child (Presser, 1995, 2000), and families that have a partner working nonstandard hours tend to have lower marital quality, higher divorce rates, and limited parent-child interactions (Presser, 1995).

Thus, the gender gap is also still evident when looking to time spent caring for children (Bianchi, 2000; Bianchi et al., 2000; Gornick & Meyers, 2005). Even though reports indicate that fathers are spending more time with their children today than they did 30 years ago (Galinsky et al., 2009), husbands’ childcare labor hours still do not equal those of women. For example, the amount of time fathers spend with their children (under the age of 13) on workdays has increased from two hours in 1977 to 3.1 hours in 2008. During this time period, the amount of time women spend with their children on work days has held constant at approximately 3.8 hours (3.8 hours in 1977, and four hours in 2008) (Galinsky et al., 2009). Thus, men are spending more time on childcare, but that time still does not equal the time women spend on childcare.

While it appears that women are still completing the lion’s share of caring labor, recent statistics that look at generational differences in parenting time indicate that the landscape might be changing some. In 1977, when comparing parents 29 and under to parents who were 29-42, the average number of hours spent with children on a workday was 4.5 hours for mothers under the age of 29, 3.5 hours for mothers aged 29-42, 2.4 hours for fathers under the age of 29, and 1.9 hours for fathers aged 29-42 (Galinsky et al., 2009). In 2008, however, mothers under 29 spent 5.4 hours with their children on workdays, fathers under 29 spent 4.3 hours with their children on workdays, mothers aged 29-42 spent 3.7 hours with their children on workdays, and

fathers aged 29-42 spent 3.1 hours with their children on workdays (Galinsky et al., 2009). These figures might be a bit misleading as it is likely that the women and men in the 2008 “under 29” category had younger children than the women and men in the 1977 “under 29” category. Recall that in 2010, the median age at first marriage for women was 26.1 years, and 28.2 years for men (Elliot et al., 2012). While exact figures for 1977 are not available, the 1960 figures have age at first marriage at about 21 years for women and 24 years for men in 1960 (Elliot et al., 2012). Thus, if people are delaying first marriage, they are likely to have younger children at older ages and might only be reporting more labor hours because the children they are caring for are younger and need more attention.

In the end, challenging gendered norms can be difficult, but more equitably sharing household and childcare labors has been shown to be beneficial for both men and women. Still, the renegotiation of these roles and responsibilities can be stressful (Haddock et al., 2001).

The presence of children in the family tends to increase the number of household labor hours that parents perform. This increase is disproportionately placed on women such that women with preschool-aged children see a much larger addition of household labor hours than women with older children. Men also see an increase in the hours associated with caring for the home, however, their increases are not as large as those of women (Bianchi et al., 2000).

Leslie, Anderson, and Branson (1991) found that while men have increased their number of childcare hours, women were still in charge of most childcare duties, even when they had jobs outside of the home. Their findings indicated that women tend “to be responsible for children, both in terms of planning and implementing decisions regarding their care and in the overall commitment of time” (p. 208).

Now that research findings associated with the division of family labor(s) have been discussed, the attention of this literature review will shift to a theoretical lens by which researchers can attempt to better understand the effects that the divisions of family labors have on marital dyads. Equity theory presents one lens through which researchers can examine how the division of family labor(s) can lead to differing individual and marital outcomes.

### **Equity Theory**

Based in the justice perspective, equity theory is an outgrowth of Social Exchange Theory (SET; Thibaut & Kelley, 1959) in that both theories deal with the costs and rewards that individuals receive as they interact with relational partners. While SET argues that individuals seek out relationships that will maximize their rewards and minimize their costs (Thibaut & Kelley, 1959), equity theory enhances the SET argument by positing that individuals will maintain relationships wherein the individual's ratio of costs to benefits is perceived as equitable with his/her partner's ratio (of costs to benefits) (Walster, Walster, & Berscheid, 1978). Thus, equity theory is similar to SET, but can be differentiated from it because equity theory relies on comparing relational partners' ratios of costs to benefits rather than just analyzing one's own ratio when making determinations about the future of a relationship.

When examining equity theory and its relationship to the division of household labor in dual-earner marital couples, the related notions of distributive justice, procedural justice, and fairness are important to consider.

**Distributive justice.** Distributive justice concerns finding a just allotment of costs and benefits amongst individuals in a relationship (K. S. Cook & Messick, 1983). Distributive justice is not concerned with *how* a just distribution of costs and benefits is found, but rather it is concerned simply with the fact that a just distribution exists.

**Procedural justice.** The concept that is concerned with the process by which individuals come to agree upon the appropriate distribution of benefits and costs is termed procedural justice (Mikula, 2012). Thus, the procedural justice concept highlights some of the mechanisms by which individuals in relationships (e.g., marital relationships), come to determine what distribution of costs and benefits in the relationship will be considered “just.”

**Fairness.** A final concept to consider is the notion of fairness. Fairness refers to an individual’s comparison of costs and benefits against his/her internal standard for what would make a just ratio (Carrell & Dittrich, 1978). Thus, fairness does not mean equality between partners, but rather a perception that the division partners are enacting is acceptable.

The notion of fairness assumes that individuals have developed their own ideas, of what is fair, just, or right in the distribution of labor. These notions of fairness can be developed based on distributions of costs to benefits experienced in past situations as well as through observations of others’ ratios of costs to benefits (Carrell & Dittrich, 1978; Messick & Sentis, 1983). For example, recent research has indicated that even when men and women work a proportionate number of hours outside of the home, women still perform a disproportionate amount of the house and childcare work when compared to their husbands (Hook, 2006). This research also points out, however, that many of the women who are performing a disproportionate number of labor hours do not perceive these inequities to be unfair (Thompson, 1991). One possible way to use the fairness perspective to interpret these findings would be to say that women who do not see clear inequities in the division of house and childcare labor as unfair are relying on socially created norms concerning what it means to be a “good woman,” a “good wife,” and a “good mother” when making assessments of fairness. Society dictates that a “good wife” takes care of the home and that a “good mother” desires to care for and nurture her children. Thus, women



who adhere to these societal norms might not see an inequitable division of labor as unfair; her inequitable ratio is just what is required to enact what society deems acceptable.

It is important to remember that individuals are able to make assessments about fairness that are not necessarily related to the number of hours they spend engaged in a particular type of labor. Thus, the actual number of hours a husband or wife spends engaged in a particular type of family labor is not as informative, in terms of equity theory, as a husband or wife's internal assessment of fairness in the division of labor.

### **Communication and Perceptions of Fairness**

When seeking to understand how dual-earner couples come to determine the appropriate divisions of labor in their relationships, the quality of the communication shared between couples can be just as informative as the content of that communication. The ways that individuals in marital dyads communicate has implications for the outcomes experienced by those individuals as well as by the dyad. Two individual-level communication traits that should help explain the relationship between perceptions of fairness in the division of labor(s) and marital quality are collaborative communication and non-aggressive communication.

**Collaborative communication.** Collaborative communication is a mechanism by which two (or more) people respond to the stimuli in their environment(s) through the use of strategies that enable those individuals to work together to address the stimuli while simultaneously managing their interpersonal relationship. In other words, collaboration is when two or more individuals work together to accomplish a goal, solve a problem, or perform a task (Berg, Schindler, Smith, Skinner, & Beveridge, 2011). While collaboration can occur in various contexts, much research has focused on collaboration in the marital dyad (Berg, Johnson, Meegan, & Strough, 2003; Berg et al., 2011; Strough, Patrick, Swenson, Cheng, & Barnes,

2003). The marital dyad is an excellent context in which to investigate collaboration as married couples spend much time together, and are often allies when solving the small and large problems that arise in their day-to-day lives.

Much collaboration research has focused on collaboration in married, older adults. Older adults are expected to make better use of collaboration because they have lived with and solved problems with their significant other often enough to have accumulated problem solving experience and as such to have created a level of “collaborative expertise” when collaborating with their partner (Berg et al., 2003; Strough et al., 2003). In other words, collaboration is easier for marital dyads to facilitate because the individuals in the dyad know the other’s strengths and weaknesses, and they have an entire arsenal of experiences to reflect upon when trying to decide how to best address a problem or issue.

The collaboration construct is conceptualized as serving both a cognitive compensation function and an interpersonal enjoyment function. In terms of cognitive compensation, the argument is that the differing skills, abilities, and sensibilities that each partner brings to problem solving situations will enable one partner to compensate for the shortcomings of the other (Berg et al., 2003). Thus, partners who score high on collaboration know that they make better decisions when they work together and as such it is always important to include one’s spouse in decision making processes.

The second function collaboration is conceptualized to serve is an interpersonal function. Here the argument is that working together to solve problems enables couples to grow closer to one another. When couples work together to address the problems they face, they enhance the perception of support their partner provides to them and they gain enjoyment and ultimately

satisfaction with the relationship (Berg et al., 2003). Couples who use collaborative communication techniques are expected to report higher levels of marital satisfaction.

Because of the positive benefits that collaborative problem solving can have on marital relationships, it is expected that collaborative communication will help explain the relationship between perception of fairness with the divisions of household, childcare, and wage labor and marital quality. These expected effects will be tested at both the intrapersonal and interpersonal levels. An intrapersonal effect is an effect that exists within the individual. An example of an intrapersonal effect would be the effect that husbands' collaborative communication has on husbands' assessment of marital quality. Both variables belong to the husband and as such, the effect exists within the husband; his initial variable predicts his outcome variable. An interpersonal effect is an effect that exists between individuals. An example of an interpersonal effect would be the effect that husbands' collaborative communication has on wives' assessment of marital quality. Here, each variable belongs to a different member of the dyad, and the effect exists between the husband and wife rather than within either the husband or the wife. In this example, his initial variable predicts her outcome variable.

Prior to testing for interpersonal effects, intrapersonal effects will be examined. Thus, the following intrapersonal hypotheses are forwarded:

**H1:** Husbands' and wives' perceptions of fairness in divisions of family labor (i.e., household, childcare, and paid) will be indirectly associated with their own perceptions of marital quality through their own use of collaborative communication.

**H1a:** Husband perception of fairness with the division of household labor will be positively related to his collaborative communication which will be positively related to his perception of marital quality (See Figure 1).

**H1b:** Husband perception of fairness with the division of childcare labor will be positively related to his collaborative communication, which will be positively related to his perception of marital quality (See Figure 2).

**H1c:** Husband perception of fairness with the division of paid labor will be positively related to his collaborative communication, which will be positively related to his perception of marital quality (See Figure 3).

**H1d:** Wife perception of fairness with the division of household labor will be positively related to her collaborative communication, which will be positively related to her perception of marital quality (See Figure 1).

**H1e:** Wife perception of fairness with the division of childcare labor will be positively related to her collaborative communication, which will be positively related to her perception of marital quality (See Figure 2).

**H1f:** Wife perception of fairness with the division of paid labor will be positively related to her collaborative communication, which will be positively related to her perception of marital quality (See Figure 3).

**Non-Aggressive communication.** A secondary communication behavior that has the potential to help explain the relationship between perceptions of fairness in the divisions of family labor(s) and marital quality is non-aggressive communication. When looking to conceptualize non-aggressive communication, it is easiest to first understand its opposite, verbally aggressive communication.

When speakers engage in verbally aggressive communication, they attack the self-concepts of others and engage in ad hominem attacks rather than focusing on bolstering their positions or critiquing the positions of others (Infante, Riddle, Horvarth, & Tumlin, 1992; Infante

& Wigley, 1986). People who are high in the verbal aggression trait tend to attack the person rather than the position when faced with a disagreement. Verbally aggressive behaviors include, “character attacks, competence attacks, insults, maledictions, teasing, ridicule, profanity, and nonverbal emblems” (Infante & Wigley, 1986, p. 61).

Infante and Wigley (1986) provide an operational definition of the non-aggressive communication trait in their foundational work on verbal aggressiveness. Infante and Wigley’s (1986) Verbal Aggressiveness Scale is comprised of two subscales. One subscale seeks to measure high levels of the verbal aggressiveness trait by asking questions such as, “When individuals are very stubborn, I use insults to soften their stubbornness,” “When individuals insult me, I get a lot of pleasure out of really telling them off,” and “When people do things that are mean or cruel, I attack their character in order to help correct their behavior” (Infante & Wigley, 1986). The second subscale seeks to measure low levels of the verbal aggression trait by asking questions such as, “I refuse to participate in arguments that involve personal attacks,” “When I try to influence people, I make a great effort not to offend them,” and “When others do things I regard as stupid, I try to be extremely gentle with them (Infante & Wigley, 1986). As these items imply, individuals who are low on trait verbal aggressiveness will communicate in non-aggressive ways. Thus, individuals who prefer non-aggressive communication techniques can be thought of as cautious about attacking the character of others when they critique their ideas (Infante & Wigley, 1986). Furthermore, people who use non-aggressive communication generally work to build the self-concepts of those they interact with, and they try to be open-minded and non-retaliatory when they interact with individuals who attack their self-concepts (Infante & Wigley, 1986).

In most studies that have made use of the verbal aggressiveness construct, the items from the low-levels of verbal aggression subscale are reverse coded so that all items can be used to provide a portrait of the verbal aggression trait in an individual. As such, most of the extant literature focuses on the effect of verbally aggressive communication on individuals and relationships. Thus, verbal aggression and marital relationships will now be discussed.

The use of verbal aggression when communicating with a significant other has been linked to relational problems and relational termination (Gottman, 2000). While Gottman (2000) does not specifically identify “verbal aggression” as the construct responsible for the dissolution of relationships, he does describe verbally aggressive behaviors when talking about his four horsemen of the apocalypse (i.e., the four communication behaviors indicative of marital distress and divorce). Gottman’s (2000) research indicates that couples who are on the verge of divorce go beyond simply arguing with their spouse. Instead, they insert criticisms into their communication when attempting to resolve a conflict. These criticisms can be interpreted as verbally aggressive behavior in that spouses are focusing their arguments/attacks on the individual and not the issue. While this is just the first step in Gottman’s (2000) cascade, couples who do not effectively learn how to avoid criticism and verbal aggression become susceptible to defensiveness, contempt, and finally stonewalling. Based upon the presence or absence of these four behaviors in a couple’s conflict communication, Gottman and colleagues can predict with 94% accuracy whether or not a couple is headed towards divorce (Gottman, 2000).

As these findings suggest, having a spouse who is high in trait verbal aggressiveness can be problematic for a marriage. On the positive side, having a spouse who is low in trait verbal aggressiveness could actually benefit a marriage. This is because when spouses communicate in non-aggressive ways they are able to discuss interpersonal conflicts without attacking the self-

concept or self-worth of their partner. While it is believed that non-aggressive communication will have both intrapersonal and interpersonal effects, the following hypotheses only look at the intrapersonal effects:

**H2:** Husbands' and wives' perceptions of fairness in divisions of family labor (i.e., household, childcare, and paid) will be indirectly associated with their own perceptions of marital quality through their own use of non-aggressive communication.

**H2a:** Husband perception of fairness with the division of household labor will be positively related to his non-aggressive communication, which will be positively related to his perception of marital quality (See Figure 1).

**H2b:** Husband perception of fairness with the division of childcare labor will be positively related to his non-aggressive communication, which will be positively related to his perception of marital quality (See Figure 2).

**H2c:** Husband perception of fairness with the division of paid labor will be positively related to his non-aggressive communication, which will be positively related to his perception of marital quality (See Figure 3).

**H2d:** Wife perception of fairness with the division of household labor will be positively related to her non-aggressive communication, which will be positively related to her perception of marital quality (See Figure 1).

**H2e:** Wife perception of fairness with the division of childcare labor will be positively related to her non-aggressive communication, which will be positively related to her perception of marital quality (See Figure 2).

**H2f:** Wife perception of fairness with the division of paid labor will be positively related to her non-aggressive communication, which will be positively related to her perception of marital quality (See Figure 3).

### **The Dyadic Nature of Marital Bonds**

While hypotheses 1 and 2 look at intrapersonal effects, it is also important to test for possible interpersonal effects of fairness on quality through communication. Testing for interpersonal effects requires examining marital partners as a unit, rather than as individuals. It is important to consider husbands and wives as one couple rather than two individuals because husbands and wives have great influence on one other, and as such their scores are never truly independent (W. L. Cook & Kenny, 2005; Kenny, Kashy, & Cook, 2006; Ledermann, Macho, & Kenny, 2011). When testing hypotheses on individuals, researchers make the assumption that participants are independent of each other. When analyzing responses from dyads, researchers are fully aware that they are violating independence assumptions and as such need to find a way to account for the interdependence inherent in relationships when testing hypotheses at the dyadic level. When independence assumptions are violated, model parameters can become biased (W. L. Cook & Kenny, 2005). Thus, controlling for interdependence is important when conducting research with interpersonal relationship partners.

One tool that can be utilized to help researchers analyze dyadic data is the Actor-Partner Interdependence Model (APIM; Kenny et al., 2006). This model lets researchers examine the intrapersonal (i.e., actor) and interpersonal (i.e. partner) effects of a predictor variable  $X$  on an outcome variable  $Y$  for individuals and their relational partners (e.g., spouses, siblings, parents and children, etc.). To better describe the APIM that will be used in these analyses, see Figure 4 which displays the conceptual version of the Actor-Partner Interdependence Model for



Mediation (APIMeM; Ledermann & Macho, 2009; Ledermann et al., 2011). The APIMeM has the same basic structure as the APIM, but it extends the model by adding a mediating variable for both husbands and wives. The addition of this variable enables the testing of both intrapersonal indirect effects (for which interdependence has been controlled because both individuals are included in the model) and interpersonal indirect effects. I will now briefly describe the eight indirect effects that can be estimated via the APIMeM. It may be helpful to use Figure 4 to visually map out the effects as I describe them in text. Prior to looking at the indirect effects, it is also important to note some important definitions. Actor effects are effects that exist between two variables from the same individual, and partner effects are effects that exist between two variables from the different individuals (W. L. Cook & Kenny, 2005). Additionally, convention indicates that one should distinguish between effects in the APIMeM by referencing the dyad member whose outcome variable is included in the effect (Ledermann et al., 2011).

The intrapersonal indirect effects that can be tested with the APIMeM include the husband actor-actor indirect effect and the wife actor-actor indirect effect. The husband actor-actor indirect effect is the one that goes from husbands' initial variable to husbands' mediator variable to husbands' outcome variable ( $X_h \rightarrow M_h \rightarrow Y_h$ ) and the wife actor-actor indirect effect is the one that goes from wives' initial variable to wives' mediator variable to wives' outcome variable ( $X_w \rightarrow M_w \rightarrow Y_w$ ). Both of those effects are contained entirely within the individual and as such are considered intrapersonal. Because these intrapersonal effects are estimated in a model that includes correlations between actor and partner reports, the interdependence of the spouses is accounted for when estimating the parameters and indirect effects. Even though the influence of the partner has been controlled for, the effect under investigation is still entirely contained within the individual and is considered an intrapersonal effect.

So, two of eight possible indirect effects are intrapersonal indirect effects. The remaining six are interpersonal indirect effects. Interpersonal indirect effects can be either partner-partner indirect effects, actor-partner indirect effects, or partner-actor indirect effects. The two interpersonal partner-partner indirect effects would be the effects that go from husbands' initial variable to wives' mediator variable to husbands' outcome variable ( $X_h \rightarrow M_w \rightarrow Y_h$ ; the husband partner-partner indirect effect) and from wives' initial variable to husbands' mediator variable to wives' outcome variable ( $X_w \rightarrow M_h \rightarrow Y_w$ ; the wife partner-partner effect). These two effects are considered partner-partner indirect effects, because the effect from  $X$  to  $M$  is a partner effect and the effect from  $M$  to  $Y$  is a partner effect (Ledermann et al., 2011).

The final four interpersonal effects can be identified as either actor-partner indirect effects or partner-actor indirect effects. Thus, the indirect effect that goes from wives' initial variable to wives' mediator variable to husbands' outcome variable ( $X_w \rightarrow M_w \rightarrow Y_h$ ) is considered a husband actor-partner effect. The indirect effect is a "husband" effect, because the husband's outcome variable is being investigated. The indirect effect is an "actor-partner" effect because the pathway from  $X_w$  to  $M_w$  is an actor effect (the effect goes from one wife variable to another) and the pathway from  $M_w$  to  $Y_h$  is a partner effect (the effect goes from one wife variable to a husband variable). Thus, the wife actor-partner indirect effect is the one that goes from husbands' initial variable to husbands' mediator variable to wives' outcome variable ( $X_h \rightarrow M_h \rightarrow Y_w$ ). The husband partner-actor effect is the one that goes from wives' original variable to husbands' mediator variable to husbands' outcome variable ( $X_w \rightarrow M_h \rightarrow Y_h$ ), and the wife partner-actor effect is the one that goes husbands' original variable to wives' mediator variable to wives' outcome variable ( $X_h \rightarrow M_w \rightarrow Y_w$ ). As these six effects involve variables from both members of the dyad, they are considered interpersonal indirect effects.

Using the APIMeM to estimate intrapersonal and interpersonal indirect effects has proven important for researchers investigating distributive justice. Past research has shown that perceptions of justice in the division of household labor can have interpersonal effects between husbands and wives. For example, Mikula, Riederer, and Bodi (2012) conducted a study of dual-earner couples in Austria, Germany, and Switzerland. Their study found that the greater the distributive justice wives report experiencing, the lesser the conflict and the greater the satisfaction that both wives and their husbands report (Mikula et al., 2012).

Thus, these results highlight both intrapersonal and interpersonal indirect effects. The intrapersonal indirect effect went from wives' perceived justice to wives' relational satisfaction through wives' marital conflict (i.e., a wife actor-actor indirect effect). Specifically this effect indicated that wives who report more fairness in the division of household labor report less conflict in their marriages, and wives who report less conflict report more marital satisfaction.

The interpersonal indirect effect went from wives' perceived justice to husbands' relational satisfaction through husbands' marital conflict (i.e., a husband partner-actor indirect effect). This indirect effect indicated that as wives perceive more fairness in the division of household labor, their husbands experience less marital conflict. As marital conflict goes down for husbands, marital satisfaction goes up for husbands. Thus some evidence of interpersonal effects exist in the literature when looking at distributive justice, conflict, and marital satisfaction. This study will add to this body of research by testing the ability of positive communication behaviors to explain the relationship between fairness and marital quality.

While the Mikula et al. found partner-actor effects, it is more likely that actor-partner effects will be observed when testing collaborative and non-aggressive communication as mediators. It is likely that Mikula et al. found partner-actor effects because of the

operationalization of their mediator variable. Marital conflict, their mediator, included one item concerning the frequency of conflict in the marriage, one item concerning the strain associated with conflict in the marriage, and one item concerning the amount of conflict tied to the division of household labors. Thus, the conflict measure was directly related to the initial variable.

The mediator variables in this study, however, were not operationalized to be directly connected to the initial variables (e.g., the collaborative communication measures did not ask participants how much they collaborated to ensure a fair division of family labors). Thus, it seemed more likely that actor-partner effects would be experienced because an individual's assessment of fairness in the various divisions of labor would more likely influence his/her own collaborative communication than the collaborative communication of his/her spouse. In other words, I might not be more likely to use collaborative communication because my husband believes our division of household labor is balanced, but he would likely be more willing to collaborate with me if he did not feel he was performing a disproportionate amount of household, childcare, or wage labors. While an individual's perceptions of fairness seemed likely to only influence his/her own use of collaborative or non-aggressive communication, the use of both of these positive communication behaviors seemed likely to have effects on the marital satisfaction of one's partner. Thus, the following interpersonal hypotheses are forwarded:

**H3a-c:** There will be an indirect effect of husbands' perception of fairness in the division of labor (i.e., household (H3a), childcare (H3c), and wage (H3e)) on wives' perception of marital quality through husbands' collaborative communication (See Figure 5 for household labor, Figure 6 for childcare labor, and Figure 7 for wage labor).

**H3d-f:** There will be an indirect effect of wives' perception of fairness in the division of labor (i.e., household (H3b), childcare (H3d), and wage (H3f)) on husbands' perception of marital

quality through wives' collaborative communication (See Figure 5 for household labor, Figure 6 for childcare labor, and Figure 7 for wage labor).

**H4a-c:** There will be an indirect effect of husbands' perception of fairness in the division of labor (i.e., household (H4a), childcare (H4c), and wage (H4e)) on wives' perception of marital quality through husbands' non-aggressive communication (See Figure 5 for household labor, Figure 6 for childcare labor, and Figure 7 for wage labor).

**H4d-f:** There will be an indirect effect of wives' perception of fairness in the division of labor (i.e., household (H4b), childcare (H4d), and wage (H4f)) on husbands' perception of marital quality through wives' non-aggressive communication (See Figure 5 for household labor, Figure 6 for childcare labor, and Figure 7 for wage labor).

To recap, hypotheses 1 and 2 predict that perceptions of fairness in the divisions of household, childcare, and wage labor will each have an indirect effect on marital quality through collaborative communication and non-aggressive communication. Each of the hypotheses forwarded tests a simple mediation model, meaning that each model has one independent variable (perception of fairness in the division of household, childcare, or wage labor), one mediator variable (collaborative communication or non-aggressive communication), and one outcome variable (marital quality). Furthermore, these simple mediation models test intrapersonal hypotheses, meaning that all the modeled variables belong to either the husband or the wife. Testing these models separately for husbands and wives is important as it ensures that the hypothesized intrapersonal effects (i.e., actor-actor effects) exist prior to testing models hypothesizing the more complex interpersonal effects. In other words, it is important to know that there is an indirect effect of perception of fairness on marital quality through communication for each individual before those relationships are examined at the level of the couple.

Hypotheses 3 and 4 identify expected relationships among variables at the dyadic level (i.e., level of the couple). These hypotheses posit the existence of actor-partner interpersonal effects and as such they include both husbands' and wives' assessment of a single predictor variable for each partner (i.e., perception of fairness in the division of wage, household, or childcare labor), a single mediator variable for each partner (i.e., collaborative communication or non-aggressive communication), and a single outcome variable for each partner (i.e., marital quality). Thus, hypotheses 3 and 4 enable the examination of dyadic structures in the data, but not necessarily for all predictor variables simultaneously.

## **CHAPTER III**

### **Method**

#### **Participant Inclusion Criteria**

Married couples were recruited for participation in this study if they met the following inclusion criteria. First, both individuals had to be willing to participate in the study and were required to be partners in a heterosexual marital relationship. While understanding how perceptions of fairness in the division of family labors and communication affect relationship outcomes for individuals involved in partnerships other than legally-recognized marital relationships (e.g., cohabitating couples, same-sex couples, etc.) would provide useful information to the scientific community, it is outside the purview of this dissertation research. Further, soliciting participants from such varied backgrounds, and obtaining a large enough sample from each group would have been both time and cost prohibitive. Thus, for the purposes of this study, the terms “partner” and “parent” were restricted to define only individuals in heterosexual married couples.

Guidelines concerning the number of hours each individual needed to be employed and the age of the dyad’s children came from a series of studies conducted by Mikula and colleagues (Mikula, 2012; Mikula, Riederer, & Bodi, 2008; Mikula et al., 2012). These studies were conducted with data from a European research project that looked at the psychological outcomes associated with balancing work and family labors for young dual-earner couples. Within these studies, both partners had to be employed at least 15 hours per week, and they had to have at least one preschool-aged child and no children over the age of 12 living in the home.

Fifteen hours per week was chosen as the baseline for part-time employment because it represents a figure that would likely require an individual to average employment on more than one day per week. Thus, looking for an average of 15 hours per week helps to exclude

individuals who work only seasonally or intermittently. The minimum of 15 hours per week for part-time employees is a much more restrictive definition of part-time than the one provided by the Bureau of Labor Statistics which classifies part-time employment as any number of hours less than 34 (Shaefer, 2009). Because a larger number of hours, even when one is part-time, would presumably be more difficult to balance, 15 hours was chosen as the baseline in this study.

Parents were only eligible for this study if they had no children over the age of 12 in the home. This requirement was included because past research has shown that older children, especially female children, tend to perform some of the household labor required within families (Shelton & John, 1996). Thus, as children age, it becomes easier for parents to balance work and family labors as children are both in school—and as such not necessarily needing other forms of care—and helping with the household and perhaps childcare labors. Earlier studies had included the requirement that participants have a child under the age of 6 in the home (Mikula, 2012; Mikula et al., 2008, 2012). This requirement was not included in this study so as to allow for more couples to participate.

### **Participant Recruitment Procedures**

Couples were recruited for participation in this study via one of two processes. First, couples were referred by undergraduate students at a mid-sized Midwestern university. Students were offered a small amount of extra credit for participating, if eligible, or for referring a couple who met the aforementioned inclusion criteria. Students were made aware of this research opportunity via announcements on online course management systems, in emails, and in classes. Students were asked to contact potential participants and get consent to refer them to the study. Once consent from the participants had been received, students filled out an online survey and provided the names and email addresses of the marital partners they were referring as well as



their names so that extra credit could be issued once the referred participants had completed the study. Data concerning the names and emails of students and participants was kept in a database separate from the data germane to the study. Once data collection was complete, all participants received the course credit promised, and the data files with identifying information were deleted.

When emailing the referred couples, both individuals in the marital dyad received an email that contained a description of the study procedures and purpose as well as a unique identifier that I had assigned. The email also contained a link to the online survey. The referred individuals were sent weekly reminder emails up until they either completed the study or the timeframe for data collection expired.

Students referred 231 couples to the study. Of those referred, 77 couples had both individuals attempt the survey. Because of the planned missing data design utilized in this study (this design will be further explained later in the chapter), participants were not excluded if they did not complete all portions of the survey instrument. Thus, approximately 33% of student referred couples were included in the final analyses.

The second process by which participants were recruited to this study involved snowball sampling. When collecting data for the snowball sample, I used a social networking site to privately message individuals from my personal network whom I knew fit the criteria for the study. In this message I asked them to participate if they were able and interested. Additionally, at the end of the message, I asked my social network connections to send my original message on to individuals in their networks whom they believed fit the criteria. Participants recruited via snowball sampling were not assigned participant IDs prior to their participation, but they were asked to provide their spouse's email address so their spouse could be contacted if he/she had not

completed the survey. Email addresses were retained until all data had been collected, but were deleted prior to any data analysis.

Individuals from 60 couples began the survey after being recruited through snowball sampling techniques. Forty-three of those individuals had a spouse complete the study as well. Thus, 72% of participants who began the survey after being recruited through snowball sampling methods completed the study. Because of the nature of snowball sampling techniques, it was not possible to know the number of individuals who were asked to participate in the study.

Regardless of recruitment technique, all participants completed their online surveys using the Qualtrics software package. Participants viewed an informed consent for online research form prior to beginning the questionnaire, and each individual indicated his/her willingness to participate before any portions of the questionnaire became available.

### **Participant Demographic Information**

The final sample included 77 couples recruited from student referrals and 43 couples recruited via snowball sampling techniques for a total sample of 120 couples. Couples had been married an average of 9 years ( $SD = 6.83$ , range = 1 – 38) and most (93.3% of both husbands and wives) had never been divorced. Couples had an average of 1.58 children ( $SD = .63$ , range 1 – 3) living in their homes. Fifty-nine couples (49%) reporting having only one child in the home, 52 couples (43%) reporting having 2 children in the home, and 9 couples (8%) reporting having 3 children in the home. All couples met the requirements of having no children over the age of 12 in the home and 89% of couples had at least one child aged 5 or under in the home. Having preschool-aged children in the home is important to highlight because, “regardless of employment status, both mothers and fathers of children under 6 spent more than twice as much

time providing childcare on an average day as did their counterparts whose youngest child was age 6 to 17” Bureau of Labor Statistics (2008) (p. 2).

The mean age for children was 4.58 ( $SD = 2.70$ ) and 11% of children were infants, 13% were 1 year old, 18% were 2 years old, 8% were 3 years old, 16% 4 years old, 9.5% were 5 years old, 6% were 6 years old, 5% were 7 years old, 3% were 8 years old, 2.5% were 9 years old, 3% were 10 years old, 3.5% were 11 years old, and 1.5% were 12 years old. Of the 190 children represented in this study, 107 were male (56%) and 83 were female (44%).

Some participants simultaneously reported having very young children in the home and having been married to their spouse for many years. For example, 10 couples had been married between 22 and 39 years, yet they reported having 14 children in their homes. These children had a higher average age ( $M = 7.62$ ,  $SD = 3.62$ ) than the rest of the sample ( $M = 4.30$ ,  $SD = 2.44$ ), but in order to check the validity of these responses the primary researcher emailed the 4 couples. Their responses indicated that they had children aged 5 and under in the home. Of those couples, 1 indicated that they were currently the sole caregivers to their grandchildren, 2 indicated that they had adopted children after their biological children had gotten older, and 1 indicated that they had another child later in life. All stated that they had no adult children living in the home. Since there was no requirement that the children living in the home be the biological children of the participating couple, these individuals were retained in the sample.

**Husband demographics.** The average age of husbands was 36.16 years ( $SD = 8.14$ ; range 22 - 62) with 20% between the ages of 22 and 30, 59.2% between the ages of 31 and 40, 12.5% between the ages of 41 and 50, and 8.3% aged 51-62. The majority of husbands identified as White (89.2%) with 1.7% identifying as African American, 5% identifying as Hispanic, 3.3% identifying as Asian, and .8% identifying as Portuguese.

In terms of education, one husband had not completed high school, 20% had completed high school but did not have college degrees (14.2% of that group had attended college), 10.8% had two-year degrees, 40% had 4-year degrees, 20.8% had master's degrees, 3.3% had doctoral degrees, and 4.2% had professional degrees.

The responding husbands averaged 45.36 hours ( $SD = 11.84$ ) of paid labor per week, with husbands reporting a minimum of 15 hours of wage labor per week and a maximum of 120 hours per week. Only one respondent indicated that he worked 120 hours per week, and the next highest number of reported hours per week was 86. While averaging 120 hours per week in wage labor seems unrealistic, it is important to remember that new technologies have helped to blur the lines between work and home (Clay, 2005). Thus, while still seemingly excessive, 120 hours per week seems easier to accept when one imagines that this individual might be home with his wife and child while simultaneously sending emails or working on a project.

Overall, 95% of respondents indicated that they worked 60 or fewer hours in a week. Most husbands were employed full-time (94.2%) with 5% indicating that they were employed part-time and one individual indicating that he had a flexible schedule. Seventy-five respondents indicated that they worked for private for-profit organizations, nine worked for private not-for-profit organizations, 13 worked for their local government, 4 worked for their state government, 5 worked for the federal government, and 13 were self-employed. Furthermore, husbands reported working in management (42.5%), service (5%), sales (10%), farming (2.5%), construction (9.2%), production (5.8%), and government (9.2%). Nineteen responding husbands did not indicate their profession. Finally, 90.8% husbands worked first-shift (days), 5% worked second-shift (evenings), and 4.2% worked third-shift (overnights).

In terms of income, 10 (8.3%) husbands reported earning less than \$20,000 per year, 8 (6.7%) earned between \$20,000 and \$29,999 per year, 11 (9.2%) earned between \$30,000 and \$39,999 per year, 20 (16.7%) earned between \$40,000 and \$49,999 per year, 18 (15%) earned between \$50,000 and \$59,999 per year, 10 (8.3%) earned between \$60,000 and \$69,999 per year, 10 (8.3%) earned between \$70,000 and \$79,999 per year, 9 (7.5%) earned between \$80,000 and \$89,999 per year, 5 (4.2%) earned between \$90,000 and \$99,999 per year, 3 (2.5%) earned between \$100,000 and \$109,999 per year, 1 (.8%) earned between \$110,000 and \$119,999 per year, 6 (5%) earned between \$120,000 and \$129,999 per year, and 9 (7.5%) earned over \$150,000 per year.

Finally, husbands reported spending an average of 14.18 ( $SD = 16.09$ ) hours per week on household labor, 33.38 ( $SD = 29.78$ ) hours per week on childcare labor, and 42.33 ( $SD = 18.69$ ) hours per week on wage labor. They reported that their wives spent an average of 16.68 ( $SD = 18.23$ ) hours per week on household labor, 46.53 ( $SD = 29.17$ ) hours per week on childcare labor, and 34.17 ( $SD = 17.19$ ) hours per week on wage labor.

**Wife demographics.** The average age of wives was 34.90 years ( $SD = 7.57$ ; range 20 - 60) with 29.2% between the ages of 20 and 30, 51.7% between the ages of 31 and 40, 13.3% between the ages of 41 and 50, and 5.8% aged 51-62. Most wives identified as White (90.8%) with 1.7% identifying as African American, 3.3% identifying as Hispanic, 3.3% identifying as Asian, and .8% identifying as Native American.

In terms of education, all wives had completed high school, and only one of the nine women who indicated that she did not have any additional degrees had not ever attended college. Nine wives (7.5%) had two-year degrees, 50% had 4-year degrees, 25% had master's degrees, 4.2% had doctoral degrees, and 5.8% had professional degrees.

Wives averaged 36.19 hours ( $SD = 10.68$ ) of paid labor per week, reporting a minimum of 13 hours of wage labor per week and a maximum of 61 hours per week. Over half of the wives were employed full-time (65.8%), and 29.2% were employed part-time, 3.3% worked flexible schedules, and two individuals indicated that they were seasonal because they were educators who worked full-time during the school year, but had summers off. Fifty-six respondents indicated that they worked for private for-profit organizations, 23 worked for private not-for-profit organizations, 11 worked for their local government, 19 worked for their state government, three worked for the federal government, and eight were self-employed. Furthermore, wives reported working in management (40.8%), service (5.8%), sales (11.7%), farming (.8%), government (12.5%), and 28.3% of respondents reported working in a category other than those listed. A flaw in the question asking wives about their occupation was a failure to list “education” as a viable category. Based on many of the responses to other questions, it is likely that many of the 34 individuals who claimed to work in the category “other” would have selected “education” were it an option. Users of Qualtrics should be cautious when using their question library as this major category is missing from questions about occupation. In terms of shift, 90.8% of wives worked first-shift (days), 6.7% worked second-shift (evenings), and 2.5% worked third-shift (overnights).

Concerning income, 23 (19.2%) wives reported earning less than \$20,000 per year, 12 (10.0%) earned between \$20,000 and \$29,999 per year, 23 (19.2%) earned between \$30,000 and \$39,999 per year, 21 (17.5%) earned between \$40,000 and \$49,999 per year, 17 (14.2%) earned between \$50,000 and \$59,999 per year, 8 (6.7%) earned between \$60,000 and \$69,999 per year, 5 (4.2%) earned between \$70,000 and \$79,999 per year, 2 (1.7%) earned between \$80,000 and \$89,999 per year, 1 (.8%) earned between \$90,000 and \$99,999 per year, 3 (2.5%) earned

between \$100,000 and \$109,999 per year, 2 (1.7%) earned between \$120,000 and \$129,999 per year, 1 (.8%) earned between \$130,000 and \$139,999 per year and 2 (1.7%) earned over \$150,000 per year.

Finally, wives reported spending an average of 19.57 ( $SD = 27.98$ ) hours per week on household labor, 57.85 ( $SD = 38.02$ ) hours per week on childcare labor, and 34.46 ( $SD = 18.43$ ) hours per week on wage labor. They reported that their husbands spent an average of 11.68 ( $SD = 22.11$ ) hours per week on household labor, 36.73 ( $SD = 29.43$ ) hours per week on childcare labor, and 40.98 ( $SD = 17.99$ ) hours per week on wage labor.

## **Measures**

Reliability scores ( $\alpha$ ) for all husband measures can be found in Table 4, and for all wife measures in Table 5.

**Division of labor(s).** The divisions of labor germane to this investigation were the division of household labor, the division of childcare labor, and the division of wage labor. Within each division of labor, participants were asked to estimate the average number of weekly hours they and their spouse spent engaged in a given a category of tasks (i.e., household tasks, childcare tasks, and wage labor tasks), indicate who in the household is typically responsible for performing individual tasks within those categories, and indicate their perception of fairness with the distribution of the given tasks. The inclusion of a participant assessment of “fairness” in the division of labor on a particular task is important because a measure of fairness enables researchers to see specific places where one spouse might feel disadvantaged. Take, for example, the case of two wives. Wife A performs 5 times more housework than her husband, but believes that she and her husband share the tasks in a manner that she would consider fair. Wife B performs 2 times more housework than her husband, but she believes that she and her husband

should each perform about half of the work. Thus, wife B doesn't see her division as fair. In those scenarios we would not expect wife A to feel disadvantaged, but we would expect wife B to feel disadvantaged. Thus, even though wife B has what we might label a "more-balanced" division of household labor with her husband, the fact that she is unhappy with it would be more likely to cause her to perceive her marriage as lower in quality than the woman who is not unhappy that she performs far more work than her husband.

In the following sections each type of labor will be more thoroughly described and exemplars of questions asked will be included.

***Division of wage labor.*** As it concerns the division of wage labor, participants were only asked about the single task of performance of work for pay. Thus, participants were asked to indicate the average number of hours weekly that they spend engaged in work for pay and the average number of weekly hours their spouse spends engaged in work for pay.

Participants were also asked to indicate who typically performs work for pay on a 5-point Likert scale where 1 = *done most of the time by my partner*, 2 = *done more often by my partner*, 3 = *done equally often by both of us*, 4 = *done more often by me*, and 5 = *done most of the time by me*. This scale was adapted from Kardatzke's (2009) Division of Household Tasks scale.

Finally to assess distributive justice, participants were asked to assess the fairness of the division of wage labor. Distributive justice will be estimated with a single item (i.e., "Wage labor duties are fairly distributed between my spouse and me," measured on a 7-point Likert scale ranging from *strongly disagree* to *strongly agree*).

***Division of household labor.*** Participants were asked to individually assess the average number of weekly hours that they and their spouse spend engaged in household labor as well as indicate who in the couple—using Kardatzke's (2009) scale—was most likely to perform a series



of specific household tasks. Because research has indicated that household tasks can be gendered as feminine and/or masculine (Goldberg & Perry-Jenkins, 2004; Himself & Goldberg, 2003; Lennon & Rosenfield, 1994), care was taken to include household labor tasks that have traditionally been considered to belong to each sex. Items were selected, in part, based upon their inclusion in past studies assessing the division of household labor (Bianchi et al., 2000; Himself & Goldberg, 2003; Lennon & Rosenfield, 1994; Presser, 1989). Additionally tasks were chosen because they, in some way, helped to build and/or maintain family. As it concerns stereotypically feminine tasks, the items assessed included cleaning, planning meals, cooking, grocery shopping, dishwashing, laundry, and running errands. The stereotypically masculine tasks included were paying bills, car maintenance, lawn maintenance, outdoor chores (e.g., raking, shoveling), and working on the home. Notice that the stereotypically feminine tasks included are more time-sensitive tasks that directly meet the functions of providing for and creating a family. In order to enable the proper functioning of a family, food needs to be procured and prepared for family members. Additionally, family members need clean and orderly spaces if they are going to thrive and survive. Thus, the tasks labeled as feminine are those that are preformed frequently and often to meet the immediate needs of a family member. The stereotypically masculine tasks can also help to build family; however, these tasks tend to be less crucial to the creation and maintenance of family on a day-to-day basis. For example, outdoor chores and lawn maintenance are important since failing to complete these tasks in a timely manner can create dangerous situations for family members (e.g., slipping on snow that hasn't been shoveled) and can become costly if governmental fines are assessed for noncompliance with laws and ordinances. While these tasks work to meet the safety needs of the family, these tasks are not nagging in their need to be completed on a daily basis. There is more discretion in when masculine tasks are

accomplished; the lawn does not need to get mowed if one is too busy, but food must be provided for both adults and children even if one is too busy.

Participants were asked to indicate who typically performs each of a series of 30 tasks on a 5-point Likert scale where 1 = *my partner always performs this task* and 5 = *I always perform this task*. A sample of the tasks included were cooking meals, grocery shopping, doing the dishes, cleaning the kitchen, tidying the house, doing the laundry, mowing the lawn, running errands, and home improvement projects. For each of the aforementioned tasks (i.e., the 9 most commonly cited in past research), participants were asked if they believe that those individual tasks are distributed fairly within the household. Questions of fairness were answered on a 7-point Likert scale ranging from *strongly disagree* to *strongly agree*.

***Division of childcare labor.*** As with the other division of labor indexes, participants were asked to assess the average number of weekly hours that they and their partner spend on childcare tasks. The childcare tasks included were adapted from previous studies as they represent common childcare tasks (Barnett & Baruch, 1987; Presser, 1989). Those tasks measured included feeding, changing diapers, getting up at night with baby, playing with children, reading to children, and helping children complete schoolwork, supervising children, taking children to and from lessons, taking children to and from outings/activities, supervising personal hygiene, and caring for sick children. Additional items added by the researcher included teaching children how to speak and teaching children about morals.

As with the division of wage and household labor, participants were also asked to indicate who typically performed each of the aforementioned tasks on the same 5-point Likert scale where 1 = *my partner always performs this task* and 5 = *I always perform this task*. Additionally participants were asked if they believed that they fairly distribute labor in 5

common childcare labor tasks (i.e., feeding children, changing diapers, playing with children, supervising children, and caring for sick children). Questions were answered on a 7-point Likert scale ranging from *strongly disagree* to *strongly agree*.

**Collaborative communication.** Collaborative communication was examined using the Perceptions of Collaboration Questionnaire (PCQ; Berg et al., 2011). The PCQ is a 9-item measure that is designed to assess the cognitive compensation, interpersonal enjoyment, and frequency dimensions of collaboration. Sample items include “I make better decisions when my spouse and I work together,” “Solving everyday problems and making decisions together with my spouse brings us closer together,” and “It is rare for my spouse and me to share tasks and make decisions together” (reverse scored). Participants were asked to indicate their level of agreement with each item on a 7-point Likert scale where 1 = *strongly disagree* and 7 = *strongly agree*. Higher scores indicate higher perception of collaboration in the marital relationship.

Reliability analysis results on the PCQ suggested dropping two items. One of the dropped items came from the cognitive compensation scale (“I view working together with my spouse as necessary as it is harder for me to do things by myself”), and the other came from the interpersonal enjoyment scale (“I dislike getting my spouse’s assistance on everyday tasks as it makes me feel incompetent” (reverse scored)). Thus, seven items from the PCQ were used.

**Non-aggressive communication.** Verbal aggressiveness is conceptualized as “a personality trait that predisposes persons to attack the self-concepts of other people instead of, or in addition to, their positions on topics of communication” (Infante & Wigley, 1986, p. 61). The 20-item Verbal Aggressiveness Scale (Infante & Wigley, 1986) measures verbal aggressiveness, a unidimensional construct, with 10 items reflective of having high scores on the verbal aggressiveness trait (e.g., “If individuals I am trying to influence really deserve it, I attack their

character,” and “When individuals insult me, I get a lot of pleasure out of really telling them off”), and 10-items reflective of having low scores on the trait (e.g., “I am extremely careful to avoid attacking individuals’ intelligence when I attack their ideas,” and “When people criticize my shortcomings, I take it in good humor and do not try to get back at them”).

Because the goal of this study was to investigate positive communication behaviors that could help explain the relationship between perceptions of fairness in the divisions of family labors and marital quality, only the 10-items reflective of having low levels of trait verbal aggressiveness were utilized in analyses.

Participants were asked to provide their answers to those 10 questions on a 5-point Likert scale where 1 = *almost never true*, and 5 = *almost always true*. Typically, items reflective of having low scores on verbal aggressiveness are reversed coded, but due to an interest in seeing how a being low in trait verbal aggressiveness can benefit a marriage, those items were used as is. Thus, as the title of this section indicates, the 10 items used from the Verbal Aggressiveness scale predict a non-aggressive communication factor.

**Marital quality.** Marital quality was measured using the Quality Marriage Index (QMI; Norton, 1983). The QMI is a 6-item global measure of marital satisfaction. Participants were asked to answer questions (e.g., “We have a good marriage,” and “Our marriage is strong”) on a 7-point Likert scale where 1 = *strongly disagree* and 7 = *strongly agree*. One item, “Please indicate the degree of happiness, everything considered, in your marriage,” is measured on a scale of 1 to 7, where 1 = *not at all happy* and 7 = *extremely happy*. Higher scores indicate higher levels of marital satisfaction.

## Analytic Strategy

**Planned missing data design.** This study made use of a planned missing data design. Prior to explaining exactly what a planned missing data design is and how it was implemented in this study, some background information about missing data, including types of missingness and methods for dealing with missing data, will be discussed.

**Types of missingness.** In a foundational piece, Rubin (1976) presents a typology for classifying missing data. In this research he indicated that data could be missing completely at random (MCAR), missing at random (MAR), or missing not at random (MNAR).

When data are MCAR, as the name implies, the missingness observed in the data is said to be completely random. In other words, there are no variables—either measured or unmeasured—that can help explain why an individual has missing data on a given variable. When data are MAR, the missingness observed in the data is not random (hence the name of this mechanism for missingness is a bit misleading), but rather the missingness is related to (or can be predicted from) variables that are included in the data set. When data are MNAR, the missingness observed in the data is not random (i.e., something caused the value to be missing), and the variables that caused the missingness (or that could help predict the missingness) were not measured in the study (Graham, 2009; Graham, Taylor, Olchowski, & Cumsille, 2006; Schafer & Graham, 2002).

MCAR is the most desirable type of missingness because when data are missing because of a truly random process, modern missing data analyses can recover that data and produce unbiased parameter estimates (Graham, 2009; Schafer & Graham, 2002). When data are MAR, unbiased parameter estimates can also be produced because the mechanism(s) “causing” the missingness is known and has been measured. Thus, participants have complete data on the

variables that have caused the missingness and that complete data can be used to estimate/recover the missing values (Graham, 2009; Schafer & Graham, 2002). When data are MNAR, however, there is a mechanism that has caused the data to be missing, but researchers did not include measures of that mechanism in the survey instrument. Because it was unmeasured, the cause of the missingness in MNAR data is not taken into account when estimating/recovering the missing values. As such, when one attempts to recover MNAR missingness, the parameters obtained are biased (Graham, 2009; Schafer & Graham, 2002).

To better understand these mechanisms, take the example of an individual in rural Kansas who is completing an online survey instrument. If this individual were to accidentally skip over a question on the survey instrument, that missing value would be considered MCAR because the reason for missingness is completely random. The question was simply overlooked. If, however, a participant does not have complete data because she does not have access to high speed internet and the online survey timed out while she was in the process of completing it, the data would be considered MAR if the researchers collected data about a participant's access to high-speed internet and she had already answered those questions. If the participant was either not asked about her access to high speed internet (the lack of which caused the missingness) or had not yet completed the questions about access to high speed internet, those missing values would be considered MNAR because researchers would lack the information necessary to predict/recover the missing values.

Now that the different types of missing data have been explained, it is important to consider methods one might employ to deal with missing values.

***Methods for dealing with missing data.*** In the past, researchers have dealt with missing data by utilizing procedures such as listwise deletion, pairwise deletion, and mean substitution.

When using listwise deletion, only participants who have complete data are included in analyses. When using pairwise deletion, participants are included in analyses when they have complete data on the variables being investigated in a particular hypothesis. Finally, when using mean substitution, missing values are replaced with the sample mean for each item (Graham, 2009).

Take for example a researcher who has measured happiness, sadness, and excitement. Participant X has complete data on the happiness and sadness scales, but has missing data on the excitement scale. If the researcher used listwise deletion methods she would completely exclude participant X from her study because participant X's data are incomplete. If the researcher used pairwise deletion methods, she would include participant X in analyses that look only at happiness and sadness, but exclude participant X on any analyses that involve excitement—the only variable on which participant X has missing values. If the researcher used mean substitution, she would replace participant X's missing value on excitement with the sample mean and include participant X's data in all analyses.

All of the above-listed methods for dealing with missing data are problematic and are not recommended (Graham, 2009; Graham et al., 2006; Schafer & Graham, 2002). Listwise deletion can result in biased parameter estimates because listwise deletion has the potential to exclude entire subsections of a population. Take the example of individuals in rural Kansas who could not provide complete data because of low internet access speeds. If individuals without access to high speed internet were unable to complete the survey and their data were excluded because of listwise deletion methods, the researcher's population is no longer rural Kansans, but rather is rural Kansans with access to high speed internet.

In pairwise deletion, each hypothesis a researcher tests has the potential to report on a different subset of individuals in the sample. Again, this means that certain hypotheses would be

tested on one population while other hypotheses would be tested on another. Assume that the researcher investigating attitudes of individuals in rural Kansas designed her instrument so that all participants saw the survey items in the same order. Also assume that all participants were able to fully complete the first 3 scales on the instrument, but that those without high speed internet were unable to finish the last 3 scales. In this case, hypotheses examining variables measured in the first 3 scales would include all study participants, but hypotheses that included any variable measured in the last 3 scales would only contain individuals who had access to high speed internet. Here, not only would some of the parameter estimates be biased, but some results would refer to one population while other results would refer to an entirely different population.

Using mean substitution is also problematic. When using mean substitution, the variance of the item is underestimated. Variance represents the overall distance of all individual scores on an item from the mean. If all scores from an item are close to the item mean, variability is low. If all scores for an item are spread out, variability is high. Thus, when a missing value is replaced with the mean score, that score adds no variability (because the score has no distance from the mean). So, when missing values are replaced with the mean, variance is artificially minimized and any parameter that uses the item's variance in its estimation will be biased.

Because of the problems associated with listwise deletion, pairwise deletion, and mean substitution, the modern missing data analysis techniques of multiple imputation (MI) and full-information maximum likelihood (FIML) estimation are currently the recommended practices for dealing with missing data (Graham, 2009; Graham et al., 2006; Schafer & Graham, 2002). MI procedures will be described in a later section, as those procedures were utilized in this investigation. A full description of FIML techniques is outside the scope of this dissertation, but those interested can consult Enders (2010) for an exceptionally clear treatment of both FIML and



MI procedures. Prior to my discussion of the MI procedures, a section on the implementation of the planned missing data design is included.

***Defining planned missing data designs.*** Planned missing data designs are study designs wherein researchers strategically plan to have missing data because they know that the missingness can be recovered through modern MI and FIML estimation techniques. There are many reasons why researchers might opt to use planned missing data designs. Sometimes the data a researcher wishes to collect is costly (Graham et al., 2006). For example, some recent communication research has made use of biological data (i.e., blood samples, saliva samples, etc.) (Floyd, Pauley, & Hesse, 2010), and biological data are more expensive to collect than self-report data. Researchers who wish to use biological data in their research studies could utilize planned missing data designs to decrease the costs associated with conducting such research.

If a variable could be predicted from both information provided via self-report and from information gathered through biological samples, both indices could be used when estimating the variable in the analysis model. For example, if a researcher were measuring stress, he could use a self-report measure of stress and cheaply provide that to all participants. He could also randomly select a subset of participants to provide blood samples prior to taking the self-report survey so their stress levels could be assessed through analysis of the levels of cortisol in their blood. So long as the researcher randomly selected the participants who were asked to provide blood samples, the researcher would not need to collect data from all participants on the expensive measure. Missing data on the expensive measure (i.e., cortisol levels from blood samples) could be predicted from the information all participants provided (i.e., global estimates of stress).

Researchers might also opt to use a planned missing data design so as to decrease the burden placed on participants who are typically, in communication and other social science

research, asked to respond to multiple scales which all have multiple items (Graham et al., 2006). A planned missing data design, in this case, would allow participants to only respond to a predetermined subset of the questions in the survey instrument. This decrease in participant burden is beneficial because it saves the participant time and as such it can increase the validity of scale items (Little, Jorgensen, Lang, & Moore, 2014). Items from untaxed participants can be seen as more valid because the probability that a participant would mindlessly respond to survey questions goes down when participants are not being over-burdened. Again, because modern treatments for missing data are able to recover this missingness, not having every participant respond to every item is not seen as a problem.

In the end, planned missing data designs are beneficial to researchers because if executed correctly (via a truly random process), the missing data are mostly MCAR (i.e., missing due to a truly random process) and can be recovered with modern missing data techniques (Graham, 2009; Graham et al., 2006; Little, 2013; Little et al., 2014; Schafer & Graham, 2002).

***Implementing planned missingness in this study.*** A planned missing data design was used in this research so as to lessen participant burden. Specifically, this research utilized a 3-form design. There are a variety of planned missing designs a researcher could chose to utilize (e.g., 3-form design, 2-method design, wave-missing longitudinal design), but only the 3-form design will be discussed below. (For discussions of other planned missing designs see: Graham, 2009; Graham et al., 2006; Little, 2013; Little et al., 2014)

In the 3-form design, three separate questionnaire forms are created. Table 1 provides an example of the 3-form layout. When creating the three questionnaire forms, the researcher actually places items within four different question sets or blocks that are then combined to create the three different questionnaire forms utilized. For example, if the question sets were

labeled X, A, B, and C; Form 1 could have sets X, A, and B; Form 2 could have sets X, A, and C; and Form 3 could have sets X, B, and C. Notice that all forms indicated above include question set X. This is because having a common set of questions is an important part of the 3-form design. Researchers can, and should, ensure that the best predictors of each measured construct are included in the common set (Moore, 2012). Furthermore, researchers are encouraged to make the common set of questions the first set of questions each participant completes. This way, participants all have complete data on the best predictors of each construct and they have provided those data early in the data collection process (i.e., when they are less likely to be experiencing burden) (Little et al., 2014; Moore, 2012).

After the best predictors have been included in the common set, the rest of the scale items can be distributed between the A, B, and C sets. Little et al. (2014) suggest that, whenever possible, these variables be evenly divided among the A, B, and C sets. So, if a scale has 20 items and two of those items are great predictors of the construct, those two items could go to X set and six items each could go to sets A, B, and C. This would ensure that at least one item from each scale (and ideally each subscale if applicable) is included in each set. If a scale does not have enough items to be evenly balanced among the three remaining sets, it is suggested that a researcher try to keep the overall number of items in the A, B, and C sets as balanced as possible and include items in each set in such a way as to increase the between-block correlations among items. Doing this will enable a more efficient data recovery process (Little et al., 2014).

The above listed procedures outline the process by which this study's three questionnaire forms were created. First, I found scale item loadings for the scales I planned to utilize. The items with the best loadings were included in the X (or common) data set, and the rest of the items were balanced in the remaining data sets according to their factor loadings. Table 2

includes an example of how I assigned the items from the low-levels of verbal aggression subscale of the Verbal Aggressiveness Scale (Infante & Wigley, 1986) to the X, A, B, and C question sets. Because the scale has 10-items, I decided to place only one of those items in the X set, thus enabling 3 items to go to each of the A, B, and C sets. Items were placed in the A, B, and C sets utilizing the logic behind the item-to-construct balancing method for creating parcels. When describing the item-to-construct balancing method, Little, Cunningham, Shahar, and Widaman (2002) state, “Using the loadings as a guide, one would start by using the three items with the highest loadings to anchor the three parcels. The three items with the next highest item-to-construct loadings would be added to the anchors in an inverted order” (p. 166). This is the process that was utilized for balancing scale items across all question sets. Additionally, as each scale had its items assigned to the X, A, B, and C sets, I alternated which data set got the item with the highest loading not included in the X (or common) set. The example included in Table 2 has set C getting the first of the items going to sets A, B, and C. The following scale would have set A getting the first item going to sets A, B, and C.

Table 2 also displays a situation where the item-to-construct loading method for assigning items to question sets was not strictly followed. Had the method been followed precisely, items 8, 9, and 10 would have gone to sets C, B, and A respectively. Those items went to sets A, B, and C, respectively. This was done because the scale had two items with extremely low loadings (i.e., items 9 and 10). Because question set C got the best-remaining-predictor, the decision was made to also give it the worst-remaining-predictor.

After the question sets were created, a series of questionnaire forms were created in Qualtrics. First, an introductory survey was created for both husbands and wives. This survey included demographic information including sex, age, income, occupation, U.S. Census job

category (i.e., for-profit, not-for-profit, local government, etc.), full- or part-time employment status, shift, average weekly wage labor hours, years married, number of kids, age of kids, sex of kids, and whether or not one had been previously divorced. This survey is called the “introductory” survey, because from this root Qualtrics was set up to randomly assign participants to either the AB, AC, or BC questionnaire form after they completed the introductory survey. As their names imply, the AB form included question sets A and B (but not C), the AC form included question sets A and C (but not B), and the BC form included question sets B and C (but not A).

Ideally, one would also include the common set of questions in the introductory survey (Moore, 2012), but in this design the common set questions were included as the first questions in the AB, AC, and BC forms. This was done because of the lag time associated with Qualtrics closing the introductory survey and opening the secondary (and randomly assigned) questionnaire form. I feared that participants would close their browser windows as they waited for Qualtrics to randomly assign them to a secondary questionnaire. Thus, the introductory survey was kept as short as possible so participants would not assume that the lag time between completing the first questionnaire and receiving the second meant that the survey had been completed. Additionally, a question was added to the end of the introductory survey that stated, “Once you click the forward button below you will be redirected to the survey. You will see a couple of “processing” screens, but that is completely normal. Please do not close your browser. Thank you for your participation, and please click “OK” below!” Participants were required to answer this question before they moved on in an effort to ensure this message was read.

***Preparing data for analyses.*** Once data collection was finished, IP addresses, dates, introductory survey end times, and secondary survey start times were used to match individual

participant introductory and secondary surveys. Once individual data were matched, couples were matched based on participant ID (when applicable) as well as their answers to the following questions: (1) what are the first two letters of your first name?, (2) what are the first two letters of your last name?, (3) what are the first two letters of your spouse's first name?, (4) what are the first two letters of your spouse's last name?, (5) what is the number of the house you live in?, and (6) on what date were you married? Once couples were matched, their responses to all of these questions were deleted as these variables are considered identifying.

Matching participants based on their responses to these questions resulted in a data set that contained the responses from the 120 marital dyads previously described. It was at this point that the decision was made to use MI rather than FIML techniques for handling the missing data because MI has the potential to recover item-level data while FIML does not (Enders, 2010; Little, 2013). Recovering item-level data allows researchers to parcel data should it be necessary. The potential need to parcel was one reason MI was chosen.

A second reason MI was chosen was because of the availability of a specialized process for using MI to estimate missing values in large data sets (Little, Howard, McConnell, & Stump, 2008). Ideally, MI should be performed on the full data set because doing so enables the MI algorithms to utilize all available data when estimating the missing values (Enders, 2010). When data sets are large (e.g., more items than cases), the MI processes can have difficulty converging and thus may not produce missing value estimates.

The data set used in this study had more items than cases, and initial attempts at using MI on the full data set were unsuccessful. As a result, the specialized process mentioned above was utilized to estimate the missing values in this study. This process is described in the next section.

**Multiple imputation.** As was stated earlier, a full treatment of MI procedures is outside the scope of this project, but those interested in learning more should consult Enders (2010).

Generally speaking, multiple imputation is a technique by which missing data are recovered via processes that estimate probable values for each missing value (Enders, 2010). These imputations are labeled as “multiple” because when conducting MI (versus a single imputation) more than one version of the data set is produced. Current guidelines suggest creating and analyzing somewhere between 20 and 100 versions of the imputed data (Schafer & Graham, 2002). For these analyses, 100 multiply imputed data sets were produced and analyzed.

Contrary to what many might believe, multiple imputation does not result in “made up data” because the algorithms that estimate missing values use the known information in the data set to predict probable values for the missing items. So, MI techniques use what is known to help recover what is unknown. This is one of the reasons why the best predictors of all scales are included in a question set that all participants complete. If all participants answer the questions that best predict the constructs, then that high-quality information is able to be assessed as the missing values are estimated.

Technically, MI is a three step process that, in this study, involved: (1) generating 100 copies of the multiply imputed data set, (2) analyzing each of the 100 data sets, and (3) pooling the results from each of the 100 analyses.

As was briefly discussed above, the imputation step in these analyses was difficult because of the large number of variables measured in the study. While only six scales are described within this dissertation, data were collected on 16 different scales with a total of 207 items between them. While participants each only responded to about 157 of these items, the

dyadic data set did have 414 variables for each case; with that many data points, it was difficult to get the MI analysis to converge (i.e., estimate missing values) (Enders, 2010).

Because initial attempts at estimating missing values with the full data failed, I turned to a process that uses aggregate scale scores to predict item-level missing values for a few scales at a time. This process is described in KUant Guide 011.3 which can be accessed at [www.crmdata.ku.edu](http://www.crmdata.ku.edu) (Little et al., 2008). In the first step of this process, scale and subscale scores were created for all measured constructs by averaging the available scores for each scale.

In the second step of this process, a single imputation was run at the level of the aggregated scales. This ensured that all dyads had complete scale-level data even though they still had item-level missing data. Theoretically, there should not have been any missing values at the aggregated scale level because each form of the questionnaire was designed to contain at least one item from each scale/subscale. Nonetheless, this step was conducted so as to ensure complete scale-level data prior to estimating item-level data.

In the third step of this process, the imputed scales were used “as anchors to impute item-level missing data in a sequential process” (Little et al., 2008, p. 2). This means that instead of using item-level data to estimate missing values on a given scale, scale-level data was used. While this is not ideal, it does enable information from all appropriate scales to be utilized when missing values are estimated. Furthermore, care was taken to ensure that, whenever possible, item-level data were imputed for both the husband and the wife responses at the same time (e.g., both husband and wife marital quality data were imputed at the same time).

To impute item-level data from the previously imputed scale scores, one runs a series of MI analyses ensuring that whenever a scale’s items are being imputed, that the scale-level data associated with those items is excluded from the imputation model.



All imputations were run using Mplus7 (Muthén & Muthén, 2012). To complete the imputation step for these analyses, the item-level variables generated in each step of the imputation process described above were combined into 100 data sets that each had complete item-level data.

Returning to the broader discussion of MI as a three-step process (rather than the steps involved in imputing the missing data in large data projects), the second step in this process is the analysis step. In this step analyses used to test study hypotheses are carried out on each of the imputed data steps. Mplus (as well as many other statistical packages) has an automated procedure for running these analyses on each imputed data set. Furthermore, Mplus also standardizes the final step of the process which is the pooling step. In the pooling step, Rubin's (1987) rules are applied to generate a single set of parameter estimates from the parameter estimates produced in all 100 iterations of the data.

The process by which the data in this study were imputed has now been described, and the following sections will more clearly outline the methods of analysis used to test the hypotheses.

**Methods of analyses utilized.** Structural Equation Modeling (SEM) was used to test the intrapersonal indirect effects hypothesized in H1a-H1e and in H2a-H2e, and the Actor-Partner Interdependence Mediation Model (APIMeM; Ledermann et al., 2011) was used to test the interpersonal effects hypothesized in H3a-H3f and H4a-H4f.

Prior to testing any hypotheses, the decision was made to create parcels for items on the fairness in the division of household labor (9 items), collaborative communication (7 items), non-aggressive communication (10 items), and marriage quality (6 items) scales. Parcels were warranted in this investigation because the study sought to understand the relationship between

latent variables rather than the relationships among items (i.e., manifest variables) (Little et al., 2002). Parcels were created for the unidimensional constructs of fairness in the division of household labor, non-aggressive communication, and marriage quality using the item-to-construct balancing method. In the item-to-construct balancing method, a single construct model is run and the item loadings are taken into account when assigning items to parcels. The three best predictors of the construct are assigned to each parcel—typically three parcels are created because three manifest variables result in a just-identified latent construct—and then the next three best predictors were assigned to the parcels in reverse order (Little et al., 2002). Parcels for the one multidimensional construct, collaborative communication, were created using domain representative parcels. Domain representative parcels include information from each domain or dimension measured in the scale (i.e., cognitive compensation, interpersonal enjoyment, and frequency). They are the type of parcels recommended when parceling multidimensional scales (Little et al., 2002).

***Simple mediation tests of indirect effects.*** Hypotheses 1 and 2 indicate that perception of fairness with all 3 divisions of labor measured (i.e., household, childcare, and paid) will be indirectly associated with perceptions of marital quality through collaborative communication and non-aggressive communication for both husbands and wives. Thus, when testing these hypotheses, 12 separate simple mediation models were tested, 6 for husbands and 6 for wives. All models included husband or wife perception of fairness with the division of household labor (H1a, H1d, H2a & H2d), childcare labor (H1b, H1e, H2b & H2e), or wage labor (H1c, H1f, H2c & H2f) as predictor variables; collaborative communication (H1a-H1e) or non-aggressive communication (H2a-H2e) as the mediator, and marital quality as the outcome variable.

Figure 8 provides a conceptual example of the simple mediation model. This model is labeled “simple” because it only has one mediator variable (Preacher & Hayes, 2008). The use of this model enables researchers to see the indirect effect that variable  $X$  has on variable  $Y$  through variable  $M$ . The pathways in this model are labeled  $c$ ,  $a$ ,  $b$ , and  $c'$ . Pathway  $c$  represents the total effect of  $X$  on  $Y$ . The total effect is found by adding the value of the indirect effect ( $X$  on  $Y$  through  $M$ ) to the value of the direct effect ( $X$  on  $Y$ ). Pathway  $a$  represents the direct effect of the initial variable  $X$  on the mediator variable  $M$ , pathway  $b$  represents the direct effect of the mediator variable  $M$  on the outcome variable  $Y$ , and pathway  $c'$  represents the direct effect of  $X$  on  $Y$  after controlling for variable  $M$ . The indirect effect is the product of pathways  $a$  and  $b$ .

When testing H1 and H2, every attempt was made to utilize best practices for estimating mediation/indirect effects in SEM. The first best practice utilized was the use of SEM to analyze latent variable relationships rather than manifest variable relationships. In SEM analyses, latent variables are estimated from manifest variables prior to testing relationships between latent constructs. When analyses test the relationship between manifest variables (i.e., observed item scores, summed scores, or averaged scores), there is an inherent assumption that each variable is measured without error. Testing hypotheses with latent variables in SEM (rather than with manifest variables using regression or path analysis) is preferred because, “introducing latent variables can improve estimation of mediation effects by specifying a measurement model for each construct and separating measurement error from the true score” (Cheong & MacKinnon, 2012, p. 419). So, SEM enables researchers to account for measurement error in analyses which results in the generation of parameter estimates that are less biased than the estimates generated through analysis techniques using only manifest variables (Cheong & MacKinnon, 2012).

While using SEM to test indirect effects is a strength of this research, the research design created problems in utilizing the best practice of bootstrapping to create confidence intervals around the indirect effects in order to test the significance of the indirect effects (Preacher & Hayes, 2008; Wu & Jia, 2013; Zhang & Wang, 2013). To date, there is no easily executed method for generating unbiased confidence interval estimates for indirect effects when examining mediational hypotheses with multiply imputed data sets.

One possible process is described by Wu and Jia (2013). They suggest using a bootstrapping nested within MI approach (MI(BOOT)). In this approach, MI is used to obtain the desired number of imputed data sets, and then bootstrapping is used on each imputed data set to draw, with replacement, 1000 samples of that data. The desired analysis model is then fit to each bootstrapped sample and the confidence intervals (CIs) are mixed (rather than pooled) because CIs are non-normal, and as such cannot be easily combined using Rubin's (1987) Rules (Wu & Jia, 2013). While these procedures exist, there is currently no simple way to specify the mixing of the conditional distributions for complex models such as the APIMeM (which is used to test H3 and H4). Other researches have suggested the use of Bayesian SEM when analyzing mediation with multiply imputed data (Enders, Fairchild, & MacKinnon, 2013), but these techniques require a researcher to be aware of and comfortable with using Bayesian statistics.

Thus, within these analyses CIs around the indirect effects will not be reported because they could not be easily obtained. In place of the CIs, the Wald statistic will be reported. The Wald test provides some insight concerning the statistical significance of mediational pathways and indirect effects, but because the data are multiply imputed, the standard error estimates used when conducting Wald tests of significance are biased and as such the tests can be biased. It should be noted, however, that point estimates associated with mediation pathways are not

biased. Nonetheless, the results reported in the following chapter should be viewed as tentative until more sophisticated methods for estimating CIs can be developed and utilized in analyses with multiply imputed data sets.

***Actor-Partner Interdependence Model for Mediation.*** Hypotheses 3 and 4 require that both husband and wife reports be included when assessing the indirect effects of division of labor on marital quality through communication. The Actor-Partner Interdependence Model for Mediation (APIMeM) is a tool one can use when testing mediational hypotheses with dyadic data (Ledermann et al., 2011).

Prior to discussing the APIMeM, the less-complex Actor-Partner Interdependence model (a model without a mediator) will be discussed. The Actor-Partner Interdependence Model (APIM; Kenny et al., 2006) is a statistical model that enables researchers to examine the intrapersonal and interpersonal effects of a predictor variable  $X$  on an outcome variable  $Y$  for individuals who are involved in an interpersonal relationship. The nature of interpersonal relationships is such that it is oftentimes fair to assume that individuals in interpersonal dyads will exert some type of influence over their partner(s). Thus, when looking to analyze dyadic data, assumptions of independence of data are violated because of the close personal ties shared by dyadic partners (W. L. Cook & Kenny, 2005). When independence assumptions are violated, test statistics and estimates of statistical significance can be biased (W. L. Cook & Kenny, 2005).

For example, looking at the relationship of perception of fairness in the division of household labor on marital quality, the APIM would allow a researcher to test for the effect of a husband's perception of fairness on his own perception of marital quality as well as a wife's perception of fairness in the division of labor household labor on her own perception of marital quality (i.e., actor effects). Additionally, the model allows for the testing of the effect of

husband's perception of fairness in the division of household labor on his wife's perception of marital quality as well as a wife's perception of fairness in the division of household labor on her husband's perception of marital quality (i.e., partner effects). These actor and partner effects are assessed while allowing the husband and wife's predictor variables to correlate as well as each partner's residual error variances (i.e., the non-independence not explained by the APIM) (Kenny et al., 2006).

The APIMeM is an extension of the APIM that allows for the addition of a mediator variable in the model (Ledermann et al., 2011). A mediator is an intervening variable that explains how a predictor variable  $X$  influences an outcome variable  $Y$  (see Figure 4 for a conceptual model of the APIMeM). The addition of an intervening variable to the APIM enables the testing of intrapersonal indirect effects (i.e., the effect of one's own score of  $X$  on  $Y$  through one's own  $M$ ) as well as interpersonal indirect effects (e.g., the effect of one's own score of  $X$  onto one's partner's score on  $Y$  through one's own score on  $M$ , etc.). The APIMeM estimates both actor effects (i.e., effects that go from a husband variable to a husband variable or from a wife variable to a wife variable) and partner effects (i.e., effects that go from a husband variable to a wife variable or from a wife variable to a husband variable). When indirect pathways involve only actor effects, the effect is said to be intrapersonal, or contained within the person. When indirect pathways involve any partner effects, the effect is said to be interpersonal. When the indirect pathways are both partner effects, the indirect effect is called a partner-partner indirect effect. When indirect pathways involve one actor effect and one partner effect the indirect effects are labeled either actor-partner indirect effects or partner-actor indirect effects depending on the type of effect (either actor or partner) observed in the  $X \rightarrow M$  and  $M \rightarrow Y$  pathways. For example,  $X_h \rightarrow M_h \rightarrow Y_w$  is an actor-partner effect because the first effect,  $X_h \rightarrow M_h$ , is an actor

effect that goes from husbands' initial variable to husbands' mediator variable, and the second effect,  $M_h \rightarrow Y_w$ , is a partner effect that goes from husbands' mediator variable to wives' outcome variable. Thus when the first effect is an actor effect and the second effect is a partner effect, the indirect effect is labeled as an "actor-partner" effect.

This study hypothesized that actor-partner effects would exist for husbands and wives such that their own perceptions of fairness in the divisions of labor would have an effect on their own use of collaborative or non-aggressive communication (i.e., an actor effect), but then their use of collaborative or non-aggressive communication would have a significant effect on the marital quality reported by their partner (i.e., a partner effect). In other words, it is not expected that a husband's perception of fairness with the division of household labor will have an effect on his wife's use of collaborative communication. Rather a husband's perception of fairness will relate to his own use of collaborative communication as will a wife's perception of fairness. The use of collaborative communication is then hypothesized to be linked to partner reports of marital quality.

Thus, the APIMeM allows for the investigation of complex relationships among matched dyads whose dependence on one another causes independence assumptions to be violated.

## CHAPTER IV

### Results

Table 3 contains the theoretical range, means, and standard deviations for all study variables. Table 3 also contains the results of a test comparing mean values on all study variables between husbands and wives. Because of the relative ease associated with using Mplus 7.0 (Muthén & Muthén, 2012) to analyze multiply imputed data and pool results, these tests of mean difference were conducted in Mplus by including a model test statement that tested the null hypothesis:  $0 = \mu_1 - \mu_2$  (i.e., the null hypothesis tested in a paired samples t-test). When testing for significance of the model test, Mplus conducts a Wald test. These tests indicated that husbands perceive a statistically significantly greater amount of fairness in the divisions of household and childcare labor than their wives. Additionally, wives were more likely to report using non-aggressive communication than their husbands.

Table 4 contains the correlations for all husband study variables as well as reliability estimates for each scale. Table 5 contains the correlations for all wife study variables as well as reliability estimates for each scale. Finally, Table 6 contains within dyad correlations.

#### **Hypothesis 1: Collaborative Communication as an Intrapersonal Mediator of Perceptions of Fairness in the Division of Family Labor(s) and Marital Quality**

The first hypothesis posited that husbands' and wives' use of collaborative communication would explain the relationship between perception of fairness in the division of labor (i.e., H1a & H1d = household labor, H1b & H1e = childcare labor, and H1c & H1f = wage labor) and marital quality. In other words, it was expected that collaborative communication was one variable that could enable perceptions of fairness in the division of labor to have an effect on marital quality. Specifically, it was hypothesized that the fairness an individual perceives in the



division of family labor(s) would be positively related to use of collaborative communication which would be positively related to assessment of marital quality.

Structural Equation Modeling (SEM) using maximum likelihood estimation was utilized to conduct this series of intrapersonal (i.e., within the individual) simple mediation tests. The results of each hypothesis are presented in a variety of ways. First, a diagram of each tested relationship is presented, with standardized parameters, in Figures 9 and 10. Table 7 contains unstandardized parameter estimates for the direct effects, and Table 8 contains unstandardized estimates of the indirect and total effects. Per the advice of Hayes (2013), the unstandardized results are presented in-text. Hayes argues that, standardized estimates are not as helpful to future researchers as unstandardized estimates because through standardization one arbitrary measurement scale is standardized into another arbitrary scale. Once results have been standardized, it is no longer possible to compare point estimates from one study to the next. When results are presented in an unstandardized form, however, “the analytic results (equations, regression coefficients, etc.) map directly onto the measurement scales used in the study, and they can be directly compared across studies conducted using the same measurement system” (p.200). Thus, both standardized and unstandardized results are presented in this dissertation, but in-text recounting of the results is always presented in the unstandardized metric.

The path estimates in the simple mediation models (H1 & H2) and in the APIMeMs (H3 & H4) are identified by the pathway labels used in Figures 8 and 4. These labels are used so as to more clearly differentiate between the various path estimates provided for each hypothesis. For the simple mediation models (H1 & H2),  $a$  represents the path between the initial variable and the mediator variable ( $X \rightarrow M$ ),  $b$  represents the path between the mediator variable and the outcome variable ( $M \rightarrow Y$ ), and  $c'$  represents the direct path between the initial variable and the

outcome variable ( $X \rightarrow Y$ ). Furthermore, as the indirect effect is the product of the  $a$  and  $b$  pathways, the indirect effect is labeled as  $ab$ .

For the APIMeMs (H3 & H4),  $a$ ,  $b$ , and  $c'$  are also used to label the pathways as described above. Because data from both husband and wife are included in the APIMeMs, additional notation is needed to fully describe each pathway. Pathways with the “ $A$ ” subscript denote an actor effect, the “ $P$ ” subscript denote a partner effect, the “ $h$ ” subscript denote a husband effect, and the “ $w$ ” subscript denote a wife effect. In terms of the husband and wife effects, the individual whose variable is explained is named in the effect (Ledermann et al., 2011). For example, the effect that goes from a husband’s initial variable to a husband’s mediator variable is a husband actor effect. The effect that goes from a wife’s initial variable to a husband’s mediator variable is a husband partner effect. Taken together, this means that the pathway going from husbands’ initial variable to husbands’ mediator variable is labeled  $a_{Ah}$ ; the pathway from the initial variable to the mediator variable is the  $a$  pathway, the effect goes from a husband variable to a husband variable so it is an actor effect (i.e.,  $A$ ), and the explained variable is a husband variable so it is a husband effect (i.e.,  $h$ ). The 11 additional pathways in the APIMeM are labeled in Figure 4. When indirect effect estimates from the APIMeMs are identified, they are labeled as the product of the two pathways comprising the indirect effect. Thus, the indirect effect of husbands’ perception of fairness on wives’ marital quality through husbands’ collaborative communication is labeled  $a_{Ah}b_{Pw}$  because it is the product of the  $a_{Ah} (X_h \rightarrow M_h)$  and  $b_{Pw} (M_h \rightarrow Y_w)$  pathways.

In terms of effect size measures, kappa-squared ( $\kappa^2$ ; Kelley & Preacher, 2012; Preacher & Kelley, 2011) values are provided as estimates of the effect size of each significant indirect effect.  $\kappa^2$  “is the magnitude of the indirect effect relative to the maximum possible indirect

effect” (Preacher & Kelley, 2011, p. 104). So,  $\kappa^2$  indicates effect size by comparing the observed indirect effect to the largest value the indirect effect could take given the variances and covariances observed in the data.  $\kappa^2$  is bound between 0 and 1, with values close to 1 representing larger effects (Preacher & Kelley, 2011). Preacher and Kelley (2011) recommend using Cohen’s (1988) benchmarks for effect size which suggest .01, .09, and .25 as cutoffs for small, medium, and large effect sizes. Finally, the  $\kappa^2$  values reported in these results were calculated using the averaged variance, covariance, and point estimates provided after analyses had been run on all imputed data sets and the results of those analyses had been pooled. Thus,  $\kappa^2$  was calculated only once for each hypothesized indirect effect and is not a pooled estimate of  $\kappa^2$  calculations run on each of the 100 imputed data sets that were analyzed in each hypothesis.

The model testing H1a (husband perception of fairness in the division of household labor → husband collaborative communication → husband marital quality) had acceptable fit ( $\chi^2 = 40.94$  (df = 24, n = 120),  $p < .05$ ; RMSEA = .08 (.03 - .12); CFI = .96; NNFI = .94). The model shows that husbands’ perceptions of fairness in the division of household labor indirectly influences husbands’ reports of marital quality through its effects on husbands’ collaborative communication. As the results provided in Tables 7 and 8 indicate, husbands who perceived high levels of fairness in the division of household labor used more collaborative communication with their spouses ( $a = .39, p = .001$ ), and husbands who used more collaborative communication with their spouses indicated they had higher levels of marital quality ( $b = .66, p = .000$ ). The Wald test of the indirect effect was significant ( $ab = .26, p = .01$ ), indicating that collaborative communication is one variable through which the relationship between perceptions of fairness in household labor and marital quality can be understood. The indirect effect was medium-large in size ( $\kappa^2 = .22$ ), indicating that the indirect effect was about 22% as large as the maximum

possible effect size. Furthermore, there was no evidence that husband perception of fairness in the division of household labor had a direct effect on marital quality ( $c' = -.05, p = .70$ ) (i.e., these variables only influence each other through the indirect effect of collaboration). Thus, H1a was supported.

The second model tested H1b (husband perception of fairness in the division of childcare labor  $\rightarrow$  husband collaborative communication  $\rightarrow$  husband marital quality), which looked at collaborative communication as the mediator and marital quality as the outcome, but had husband perception of fairness in the division of childcare labor as the initial variable. This model had acceptable fit ( $\chi^2 = 59.80$  (df = 41, n = 120),  $p < .05$ ; RMSEA = .06 (.02 - .09); CFI = .96; NNFI = .94). As can be seen in Tables 7 and 8, husbands who perceived more fairness in the division of childcare labor reported using more collaborative communication with their wives ( $a = .42, p = .001$ ). Additionally, husbands who indicated they used collaborative communication also indicated they had high levels of marital quality ( $b = .68, p = .000$ ). Although there was not a significant direct effect of perceptions of fairness in the division of childcare labor on marital quality ( $c' = -.10, p = .48$ ), the indirect effect ( $ab = .28, p = .009$ ) was significant, meaning that collaborative communication is one mechanism that can explain how perceptions of fairness in the division of childcare exerts its effect on marital quality for husbands. Additionally, the indirect effect was medium-large in size ( $\kappa^2 = .24$ ). Overall, H1b was supported.

H1c (husband perception of fairness in the division of wage labor  $\rightarrow$  husband collaborative communication  $\rightarrow$  husband marital quality) is the final husband-only hypothesis with collaborative communication as the mediator. As in the two previous hypotheses, marital quality was the outcome variable. H1c, however, utilized perception of fairness in the division of wage labor as the initial variable. The SEM model testing the relationships hypothesized in H1c

was good fitting ( $\chi^2 = 19.15$  (df = 12, n = 120),  $p > .05$ ; RMSEA = .07 (.00 - .13); CFI = .97; NNFI = .94). The unstandardized effect estimates can be found in Tables 7 and 8. In this model, husbands' perceptions of fairness in the division of wage labor were not related to their use of collaborative communication ( $a = .09$ ,  $p = .12$ ). Similar to the past two models, however, husbands who used more collaborative communication reported experiencing higher levels of marital quality ( $b = .69$ ,  $p = .000$ ). There was no evidence of an indirect effect of fairness in the division of wage labor on marital quality through collaborative communication ( $ab = .06$ ,  $p = .14$ ), nor was there evidence of a direct effect ( $c' = -.04$ ,  $p = .53$ ). Thus, H1c was not supported.

The next series of models examined the effect of wives' perceptions of fairness in the divisions of household (H1d), childcare (H1e), and wage (H1f) labor on their assessments of marital quality through collaborative communication. As was explained above, hypothesizing that collaborative communication is a mediating variable (i.e., the variable through which an indirect effect is carried from  $X$  to  $Y$ ) means that collaborative communication is a mechanism by which perceptions of fairness in the divisions of family labor has an effect on marital quality. In other words, collaborative communication enables fairness to influence marital quality.

The model testing H1d (wife perception of fairness in the division of household labor  $\rightarrow$  wife collaborative communication  $\rightarrow$  wife marital quality) had excellent fit ( $\chi^2 = 26.38$  (df = 24, n = 120),  $p > .05$ ; RMSEA = .03 (.00 - .08); CFI = 1.00; NNFI = .99). The model showed that wives' perceptions of fairness in the division of household labor indirectly influenced their marital quality through their collaborative communication (i.e., H1d was supported). As the results provided in Tables 7 and 8 indicate, wives who perceived high levels of fairness in the division of household labor used more collaborative communication with their husbands ( $a = .35$ ,  $p = .003$ ). Furthermore, wives who used more collaborative communication with their husbands

indicated they had higher levels of marital quality ( $b = .66, p = .000$ ). A Wald test of the indirect effect was significant ( $ab = .23, p = .01$ ), indicating that collaborative communication is one variable through which the relationship between perceptions of fairness in household labor and marital quality can be understood. The significant indirect effect was medium-sized as  $\kappa^2 = .19$ . The  $\kappa^2$  indicates that the size of the indirect was 19% as large as its maximum possible value. There was no evidence that wife perception of fairness in the division of household labor had a direct effect on marital quality ( $c' = .05, p = .67$ ).

The second wife-only model (H1e; wife perception of fairness in the division of childcare labor  $\rightarrow$  wife collaborative communication  $\rightarrow$  wife marital quality) was close fitting ( $\chi^2 = 31.69$  (df = 41, n = 120),  $p > .05$ ; RMSEA = .00 (.00 - .04); CFI = 1.00; NNFI = 1.02). As the results in Tables 7 and 8 indicate, wives who perceived more fairness in the division of childcare labor reported using more collaborative communication ( $a = .28, p = .01$ ), and wives who used more collaborative communication also indicated they had high levels of marital quality ( $b = .68, p = .000$ ). The Wald test of the indirect effect ( $ab = .19, p = .02$ ) was significant, meaning that collaborative communication helps to explain how perceptions of fairness in the division of childcare exerts its influence on marital quality for wives. This effect was medium-sized ( $\kappa^2 = .17$ ). Again, perception of fairness in the division of childcare labor did not have a direct effect on marital quality ( $c' = .00, p = .67$ ). Nonetheless, H1e was supported.

The final intrapersonal model with collaborative communication as a mediator was H1f (wife perception of fairness in the division of wage labor  $\rightarrow$  wife collaborative communication  $\rightarrow$  wife marital quality). This SEM model utilized perception of fairness in the division of wage labor as the initial variable, and it was close fitting ( $\chi^2 = 12.83$  (df = 12, n = 120),  $p > .05$ ; RMSEA = .02 (.00 - .10); CFI = 1.00; NNFI = 1.00). The unstandardized effect estimates can be found in

Tables 7 and 8. In this model, wives who perceived more fairness in the division of wage labor also used more collaborative communication ( $a = .16, p = .009$ ); wives who used more collaborative communication reported higher levels of marital quality ( $b = .71, p = .000$ ). For wives, there was a significant indirect effect ( $ab = .12, p = .02$ ) of wage labor on marital quality through collaborative communication, but as with all other models tested in hypothesis 1, there was no evidence of a direct effect of  $X$  on  $Y$  ( $c' = -.06, p = .37$ ). The indirect effect was medium in size ( $\kappa^2 = .18$ ), and overall, H1f was supported.

When looking at the results of all sub-hypotheses within H1, perceptions of fairness in the division of household labor had an indirect effect on marital quality through collaborative communication for both husbands and wives. This means that as perceptions of fairness in the division of household labor increase, collaboration between spouses also increases. This increase in collaborative communication, then, results in an increase in marital quality for both husbands and wives. Thus, perceptions of fairness in the division of household labor was able to have an effect on marital quality because of the increase in collaborative communication that accompanies greater perceptions of fairness. Likewise, perceptions of fairness in the division of childcare labor had an indirect effect on marital quality through collaborative communication for both husbands and wives. That relationship between variables worked the same way as the previously explained one, perceptions of more fairness in the division of childcare labor resulted in greater marital quality because of the increase in collaborative communication associated with perceiving divisions of labor to be fairer. Finally, perceptions of fairness in the division of wage labor had an indirect effect on marital quality through collaborative communication for wives, but not for husbands.

## **Hypothesis 2: Non-Aggressive Communication as an Intrapersonal Mediator of Perceptions of Fairness in the Division of Family Labor(s) and Marital Quality**

The second hypothesis predicted that husbands' and wives' use of non-aggressive communication would explain the relationship between perception of fairness in the division of labor (i.e., H2a & H2d = household labor, H2b & H2e= childcare labor, and H2c & H2f = wage labor) and marital quality. In other words, it was expected that non-aggressive communication was another variable that could help enable perceptions of fairness in the division of labor to have an effect on marital quality. Specifically, it was hypothesized that the fairness an individual perceives in the division of family labor(s) would be positively related to use of non-aggressive communication which would be positively related to assessment of marital quality.

Structural Equation Modeling (SEM) using maximum likelihood estimation was utilized to conduct these intrapersonal (i.e., within the individual) simple mediation tests. As with the results from H1, the results of each hypothesis within H2 are presented in a variety of ways. Diagrams of each tested relationship, with standardized parameters, can be found in Figures 11 and 12. Table 9 contains the unstandardized parameter estimates for the direct effects and Table 10 contains unstandardized estimates of the indirect and total effects.

The model testing H2a (husband perception of fairness in the division of household labor → husband non-aggressive communication → husband marital quality) closely fit the data ( $\chi^2 = 30.06$  (df = 24, n = 120),  $p > .05$ ; RMSEA = .05 (.00 - .09); CFI = .98; NNFI = .97). Per Tables 9 and 10, husbands who perceived high levels of fairness in the division of household labor used more non-aggressive communication with their spouses ( $a = .27, p = .02$ ), and husbands who used more non-aggressive communication with their spouses indicated they had higher levels of marital quality ( $b = .32, p = .01$ ). While both the  $a$  and  $b$  pathways were significant, neither the



Wald test of the indirect effect ( $ab = .09, p = .08$ ), nor the direct effect of fairness on quality ( $c' = .09, p = .44$ ) were significant. Thus, husbands' non-aggressive communication is not a communication behavior that enables perception of fairness in the division of household labor to have an effect on husbands' marital quality. Consequently, H2a was not supported.

The second model tested H2b (husband perception of fairness in the division of childcare labor  $\rightarrow$  husband non-aggressive communication  $\rightarrow$  husband marital quality) and it fit the data closely ( $\chi^2 = 41.29$  (df = 41, n = 120),  $p > .05$ ; RMSEA = .01 (.00 - .06); CFI = 1.00; NNFI = 1.00). As can be seen in Tables 9 and 10, there was no significant link between husbands' perception of fairness in the division of childcare labor and their use of non-aggressive communication with their wives ( $a = .22, p = .07$ ). There was, however, a significant relationship between husbands' use of non-aggressive communication and their marital quality ( $b = .34, p = .01$ ). As with the last hypothesis, neither the indirect effect ( $ab = .07, p = .13$ ), nor the direct effect ( $c' = .08, p = .49$ ) of childcare labor fairness on marital quality were significant. In other words, non-aggressive communication does not explain the process by which perceptions of fairness in the division of childcare labor exerts an effect on marital quality for husbands. Thus, H2b was not supported.

The SEM model testing H2c (husband perception of fairness in the division of wage labor  $\rightarrow$  husband non-aggressive communication  $\rightarrow$  husband marital quality) fit the data closely ( $\chi^2 = 13.81$  (df = 12, n = 120),  $p > .05$ ; RMSEA = .04 (.00 - .10); CFI = .99; NNFI = .99). As with the H2a and H2b, the unstandardized effect estimates for this model can be found in Table 9. Unstandardized indirect effect estimates can be found in Table 10. In this model, husbands who perceived more fairness in the division of wage labor also reported using more non-aggressive communication ( $a = .13, p = .04$ ), and husbands who indicated they used more non-aggressive communication behaviors had higher levels of marital quality ( $b = .36, p = .01$ ). While both the  $a$  and the  $b$

pathways were significant, there was no evidence of either an indirect effect ( $ab = .05, p = .10$ ) of fairness in the division of wage labor on marital quality through non-aggressive communication, or a direct effect ( $c' = -.04, p = .53$ ) of fairness in the division of wage labor on marital quality for husbands. Thus, H1c was not supported. For husbands, non-aggressive communication did not help to explain the relationship between perceptions of fairness in the division of various family labors and marital quality.

H2d through H2f look at wives' perceptions of fairness in the divisions of household (H2d), childcare (H2e), and wage (H2f) labor on their assessments of marital quality through non-aggressive communication. As a reminder, non-aggressive communication was hypothesized to be the variable through which perceptions of fairness in the division of family labor(s) influenced marital quality. So, wives' reports of fairness in the divisions of family labor(s) were expected to have an effect on their assessments of marital quality because when they believe their labors are more fairly balanced, they will be more apt to communicate in a non-aggressive manner, which will ultimately result in a higher-quality marriage.

The model testing H2d (wife perception of fairness in the division of household labor → wife non-aggressive communication → wife marital quality) had excellent fit ( $\chi^2 = 13.14$  (df = 24,  $n = 120$ ),  $p > .05$ ; RMSEA = .00 (.00 - .00); CFI = 1.00; NNFI = 1.04), but overall its parameters did not indicate that wives' perceptions of fairness in the division of household labor indirectly influenced their marital quality through their non-aggressive communication. As the results provided in Tables 9 and 10 show, wives who perceived high levels of fairness in the division of household labor did not necessarily use more non-aggressive communication with their husbands ( $a = .16, p = .19$ ). Wives who used more non-aggressive communication, however, indicated they had higher levels of marital quality ( $b = .43, p = .001$ ). A Wald test of the indirect effect

was non-significant ( $ab = .07, p = .22$ ), as was the direct pathway between household labor fairness and marital quality ( $c' = .18, p = .11$ ). These findings indicate that wives' non-aggressive communication does not enable perceptions of fairness in household labor to have an effect on marital quality. Thus, H2d was not supported.

The model testing H2e (wife perception of fairness in the division of childcare labor  $\rightarrow$  wife collaborative communication  $\rightarrow$  wife marital quality) was also close fitting ( $\chi^2 = 20.60$  (df = 41, n = 120),  $p > .05$ ; RMSEA = .00 (.00 - .00); CFI = 1.00; NNFI = 1.06). Results indicates that wives' use of non-aggressive communication did not enable perceptions of fairness in the division of childcare labor to have an indirect effect on marital quality. Further, Tables 9 and 10 indicate that wives who perceived more fairness in the division of childcare labor did not report using more non-aggressive communication ( $a = .19, p = .12$ ), but that those who did use more non-aggressive communication indicated that they had higher levels of marital quality ( $b = .44, p = .001$ ). Again, neither the Wald test of the indirect effect ( $ab = .08, p = .16$ ) nor the direct effect ( $c' = .09, p = .41$ ) were significant. H2e was not supported.

The model associated with H2f (wife perception of fairness in the division of wage labor  $\rightarrow$  wife collaborative communication  $\rightarrow$  wife marital quality), the final intrapersonal model tested in this study, fit the data closely ( $\chi^2 = 6.48$  (df = 12, n = 120),  $p > .05$ ; RMSEA = .00 (.00 - .04); CFI = 1.00; NNFI = 1.04). Unlike all the other models that tested non-aggressive communication as the mediating variable, results of these tests indicated that non-aggressive communication helps to explain how perceptions of fairness in the division of wage labor has an effect on marital quality for wives. Again, unstandardized effect estimates for this model can be found in Tables 9 and 10. These results indicate that wives who perceived more fairness in the division of wage labor used more non-aggressive communication ( $a = .21, p = .004$ ); and wives who used more

non-aggressive communication reported higher levels of marital quality ( $b = .46, p = .001$ ). For wives, there was a significant indirect effect ( $ab = .10, p = .03$ ) of perception of fairness in the division of wage labor on marital quality through non-aggressive communication, but there was no evidence of a direct effect of  $X$  on  $Y$  ( $c' = -.05, p = .49$ ). The indirect effect was medium in size ( $\kappa^2 = .15$ ). Overall, H2f was supported.

To recap the results of all sub-hypotheses within H2, perceptions of fairness in the division of household labor did not have an indirect effect on marital quality through non-aggressive communication for either husbands or wives. Likewise, perceptions of fairness in the division of childcare labor did not have an indirect effect on marital quality through non-aggressive communication for either husbands or wives. Finally, perceptions of fairness in the division of wage labor had an indirect effect on marital quality through non-aggressive communication for wives, but not for husbands. This means that for wives, but not for husbands, part of the reason why perceptions of fairness in the division wage labor duties is associated with marital quality is because of the increase in collaborative communication that accompanies perceiving more fairness.

### **Hypothesis 3: Collaborative Communication as an Interpersonal Mediator of Perceptions of Fairness in the Division of Family Labor(s) and Marital Quality**

As was explained above, hypotheses one and two tested intrapersonal effects (i.e., within the individual). Specifically, the models tested posited that husbands' and wives' use of either collaborative communication (H1a – H1f) or non-aggressive communication (H2a – H2f) would enable their perceptions of fairness in the divisions of family labor(s) (i.e., household labor, childcare labor, and wage labor) to influence their assessments of marital quality. As these

hypotheses were intrapersonal, there were no situations in which any husband variable was allowed to have an effect on any wife variable and vice versa.

While the findings of the intrapersonal tests provided evidence that some of the predicted relationships exist for either husbands or wives, knowledge of the interpersonal effects (i.e., between individual effect) of perceptions of fairness on marital quality through communication were also desired. Thus, hypotheses three (H3) and four (H4) predict interpersonal effects.

Hypothesis three suggested that husbands' and wives' use of collaborative communication would help explain the effect that own perceptions of fairness have on spouse's marital quality. Specifically, effects for both husbands and for wives were expected to exist such that perception of fairness in the division(s) of family labor would be positively associated with one's own use of collaborative communication, and that own collaborative communication would be positively associated with spouse's marital quality.

Because researchers should not assume that data coming from husbands and wives are independent, the Actor Partner Interdependence Mediation Model (APIMeM; Ledermann & Macho, 2009; Ledermann et al., 2011) was utilized to test these interpersonal hypotheses. The APIMeMs were estimated using latent variable structural equation modeling (SEM).

The results are presented in a variety of ways. First, a diagram with standardized parameters for each APIMeM is presented in Figures 13 (fairness in the division of household labor as initial variable), 14 (fairness in the division of childcare labor as initial variable), and 15 (fairness in the division of wage labor as initial variable). Recall that the standardized effect estimates are presented only to be thorough, unstandardized effects will be discussed in-text. Table 11 contains the unstandardized parameter estimates for pathways in each APIMeM, and

Tables 12, 13, and 14 contain the unstandardized indirect, total indirect, and total effects estimates.

H3a (husband perception of fairness in the division of household labor → husband collaborative communication → wife marital quality) posited that husbands' perceptions of fairness in the division of household labor would have an effect on wives' marital quality through his own use of collaborative communication. Specifically, it was predicted that husbands who perceive more fairness in the division of household labor would be likely to use more collaborative communication. Their higher use collaborative communication was then expected to result in higher assessments of marital quality by their wives. H3b (wife perception of fairness in the division of household labor → wife collaborative communication → husband marital quality) predicted that the same relationships would exist for wives. Because of the nature of the APIMeM, hypotheses H3a and H3b were tested in a single model. Prior to presenting the results of this model, an explanation of tests of indistinguishability will be discussed.

When doing dyadic data analysis (e.g., using the APIMeM), researchers have to determine if their dyads are distinguishable or indistinguishable. A dyad is distinguishable when researchers are able to differentiate between the individuals in the dyad based upon a variable in the data set (Kenny et al., 2006). For example, I was able to distinguish between husbands and wives in my study of heterosexual married couples because all participants indicated their sex. A dyad would be considered indistinguishable, however, when there is no measured variable that can enable a researcher to tell the two individuals apart (Kenny et al., 2006). For example, if homosexual married couples were included in this study, the couples would be considered indistinguishable, rather than distinguishable, because sex could no longer be used to differentiate between the dyad members.

While the dyads in this study were theoretically distinguishable, it was important to test to see if the effects for husbands and wives actually differed. Ledermann et al. (2011) suggest this testing (i.e., testing for indistinguishability) because the APIMeM is a complex model that requires the estimation of many parameters. If model tests show that there are no differences between effects for husbands and wives, then those effects can be held equal and the model can be simplified; presenting the most parsimonious model is always a goal in SEM (Ledermann et al., 2011). It might be helpful to refer to Figure 4 as I explain how to conduct tests of indistinguishability.

When testing for indistinguishability, you first run the APIMeM allowing all effects to be individually estimated. Then, six separate tests are conducted to see if a series of equality constraints are tenable. Those equality constraints test to see if pathways  $a_{Ah} = a_{Aw}$ ,  $a_{Ph} = a_{Pw}$ ,  $b_{Ah} = b_{Aw}$ ,  $b_{Ph} = b_{Pw}$ ,  $c'_{Ah} = c'_{Aw}$ , and  $c'_{Ph} = c'_{Pw}$ . Making a single equality constraint in six separate models allows researchers to examine the change in chi-square to see if the pathways for husbands and wives actually differ. If the effects for husbands and wives are significantly different from one another, we would expect that holding the pathways equal would cause a significant change in model-fit. To test this, the change in chi-square from the unconstrained model to each of the constrained models is tested. Because only one pathway is constrained to be equal in each model, the chi-square difference test is conducted on one degree of freedom; the critical value for a chi-square difference test on one degree of freedom is 3.84.

If all the pathways tested are found to be indistinguishable, one final chi-square difference test is conducted to see if the models significantly differ when all six pathways are constrained to be equal. If only some of the pathways are found to be indistinguishable, the model is considered to be partially indistinguishable and a final model should be estimated that

holds only the indistinguishable pathways equal. Again, a chi-square difference test should be conducted to see if the fully unconstrained and the partially constrained models significantly differ from one another. If proposed constraints are to be considered tenable, the model fit should not significantly change when pathways that are not significantly different from one another are held to be equal.

When testing for indistinguishability, the unconstrained model testing H3a (husband perception of fairness in the division of household labor → husband collaborative communication → wife marital quality) and H3b (wife perception of fairness in the division of household labor → wife collaborative communication → husband marital quality) closely fit the data ( $\chi^2 = 116.15$  (df = 111, n = 120),  $p > .05$ ; RMSEA = .02 (.00 - .05); CFI = .99; NNFI = .99). When equality constraints were placed on the pathways, none of the six husband and wife effects were found to be significantly different from each other:  $a_{Ah} = a_{Aw}$ ,  $\Delta\chi^2(1) = .23$ ,  $p = .63$ ;  $a_{Ph} = a_{Pw}$ ,  $\Delta\chi^2(1) = .59$ ,  $p = .44$ ;  $b_{Ah} = b_{Aw}$ ,  $\Delta\chi^2(1) = .17$ ,  $p = .68$ ;  $b_{Ph} = b_{Pw}$ ,  $\Delta\chi^2(1) = .39$ ,  $p = .53$ ;  $c'_{Ah} = c'_{Aw}$ ,  $\Delta\chi^2(1) = .23$ ,  $p = .63$ ; and  $c'_{Ph} = c'_{Pw}$ ,  $\Delta\chi^2(1) = .48$ ,  $p = .49$ . For reference, “ $\Delta\chi^2(1)$ ” means change in chi-square on one degree of freedom. Furthermore, the model fit did not significantly change when constraining all six effects to be equal ( $\Delta\chi^2(6) = 3.00$ ,  $p = .81$ ), so the more parsimonious model which assumed theoretical indistinguishability, was chosen. This model closely fit the data ( $\chi^2 = 119.15$  (df = 117, n = 120),  $p > .05$ ; RMSEA = .01 (.00 - .05); CFI = 1.00; NNFI = 1.00).

Because the husbands and wives in this model were theoretically indistinguishable, the estimates for all husband and wife pathways were equal and as such those pathways will not be discussed separately. For husbands and wives, perceptions of more fairness in the division of household labor were associated with greater use of collaborative communication ( $a_{Ah}$  &  $a_{Aw} = .33$ ,  $p = .000$ ). Additionally, greater use of collaborative communication was associated with



higher own- ( $b_{Ah} & b_{Aw} = .62, p = .000$ ) and spouse-assessments ( $b_{Ph} & b_{Pw} = .22, p = .009$ ) of marital quality. Significant indirect effects existed for both the indirect effects that involve only one individual from the dyad (i.e., the intrapersonal indirect effects) ( $a_{Ah}b_{Ah} & a_{Aw}b_{Aw} = .20, p = .001$ ) and for the indirect effects that involve both individuals from the dyad (i.e., the interpersonal indirect effects) ( $a_{Aw}b_{Ph} & a_{Ah}b_{Pw} = .07, p = .03$ ). The effect size estimates indicated that the intrapersonal indirect effects ( $a_{Ah}b_{Ah} & a_{Aw}b_{Aw}$ ) were medium-sized ( $\kappa^2 = .17$ ), and that the interpersonal indirect effects ( $a_{Aw}b_{Ph} & a_{Ah}b_{Pw}$ ) were small ( $\kappa^2 = .06$ ). While the model identified significant indirect effects of  $X$  on  $Y$ , no significant direct effects of  $X$  on  $Y$  were found ( $c'_{Ah} & c'_{Aw} = -.01, p = .89$ ;  $c'_{Ph} & c'_{Pw} = -.02, p = .78$ ). Overall, this model showed that collaborative communication is one mechanism by which perceptions of fairness in the division of household labor has an effect on marital quality for marital dyads. Both intrapersonal and interpersonal indirect effects existed, with the interpersonal indirect effect indicating that perceptions of fairness influence one's own use of collaborative communication and that one's use of collaborative communication influences the marital quality of one's partner. Thus, H3a and H3b were supported. (See Figure 13 for standardized pathway estimates, and Tables 11 and 12 for unstandardized pathway and effect estimates.)

H3c (husband perception of fairness in the division of childcare labor → husband collaborative communication → wife marital quality) predicted that husbands who perceive more fairness in the division of childcare labor would be likely to use more collaborative communication. Their higher use collaborative communication was then expected to result in higher assessments of marital quality by their wives. H3d (wife perception of fairness in the division of childcare labor → wife collaborative communication → husband marital quality) predicted that the same relationships would exist for wives. Specifically, it was predicted that

wives who perceive more fairness in the division of childcare labor would be more likely to use greater amounts of collaborative communication which would result in their husbands reporting higher levels of marital quality.

As with hypotheses H3a and H3b, hypotheses H3c and H3d were tested in a single model. The unconstrained model had excellent fit ( $\chi^2 = 173.41$  (df = 183, n = 120),  $p > .05$ ; RMSEA = .00 (.00 - .03); CFI = 1.00; NNFI = 1.01). When equality constraints were placed on the pathways, none of the six husband and wife effects were found to be significantly different from each other:  $a_{Ah} = a_{Aw}$ ,  $\Delta\chi^2(1) = .66$ ,  $p = .42$ ;  $a_{Ph} = a_{Pw}$ ,  $\Delta\chi^2(1) = .28$ ,  $p = .60$ ;  $b_{Ah} = b_{Aw}$ ,  $\Delta\chi^2(1) = .12$ ,  $p = .73$ ;  $b_{Ph} = b_{Pw}$ ,  $\Delta\chi^2(1) = .20$ ,  $p = .65$ ;  $c'_{Ah} = c'_{Aw}$ ,  $\Delta\chi^2(1) = .17$ ,  $p = .68$ ; and  $c'_{Ph} = c'_{Pw}$ ,  $\Delta\chi^2(1) = 1.21$ ,  $p = .27$ . The model that constrained all six effects to be equal did not fit the data significantly differently than the unconstrained model ( $\Delta\chi^2(6) = 3.34$ ,  $p = .77$ ), so the model assuming theoretical indistinguishability was chosen. This model closely fit the data ( $\chi^2 = 177.34$  (df = 189, n = 120),  $p > .05$ ; RMSEA = .00 (.00 - .03); CFI = 1.00; NNFI = 1.01).

Again, because husbands and wives in this model were theoretically indistinguishable, estimates for all husband and wife pathways are equal and will not be discussed separately. For both husbands and wives, perceptions of greater fairness in the division of childcare labor was associated with greater use of collaborative communication ( $a_{Ah}$  &  $a_{Aw} = .31$ ,  $p = .000$ ). Greater use of collaborative communication, then, was associated with greater own- ( $b_{Ah}$  &  $b_{Aw} = .64$ ,  $p = .000$ ) and spouse-assessments ( $b_{Ph}$  &  $b_{Pw} = .21$ ,  $p = .01$ ) of marital quality. Significant intrapersonal ( $a_{Ah}b_{Ah}$  &  $a_{Aw}b_{Aw} = .20$ ,  $p = .002$ ) and interpersonal ( $a_{Aw}b_{Ph}$  &  $a_{Ah}b_{Pw} = .07$ ,  $p = .04$ ) indirect effects existed. The intrapersonal indirect effects ( $a_{Ah}b_{Ah}$  &  $a_{Aw}b_{Aw}$ ) were medium in size ( $\kappa^2 = .17$ ) while the interpersonal indirect effects ( $a_{Aw}b_{Ph}$  &  $a_{Ah}b_{Pw}$ ) were small ( $\kappa^2 = .17$ ). Again, there were no significant direct effects of  $X$  on  $Y$  ( $c'_{Ah}$  &  $c'_{Aw} = -.08$ ,  $p = .38$ ;  $c'_{Ph}$  &  $c'_{Pw} = .05$ ,  $p =$

.60). Overall, this model showed that collaborative communication enables perceptions of fairness in the division of household labor to have an effect on marital quality for marital dyads. Both intrapersonal and interpersonal indirect effects existed, with the interpersonal indirect effect indicating that perceptions of fairness influence one's own use of collaborative communication and that one's own use of collaborative communication influences the marital quality of one's partner. H3c and H3d were supported. (See Figure 14 for standardized pathway estimates, and Tables 11 and 13 for unstandardized pathway and effect estimates.)

The final pair of hypotheses in H3, H3e (husband perception of fairness in the division of wage labor → husband collaborative communication → wife marital quality) and H3f (wife perception of fairness in the division of wage labor → wife collaborative communication → husband marital quality), were tested in a single model. The unconstrained model had excellent fit ( $\chi^2 = 60.62$  (df = 58, n = 120),  $p > .05$ ; RMSEA = .02 (.00 - .06); CFI = 1.00; NNFI = .99). When equality constraints were placed on the pathways, none of the six husband and wife effects were found to be significantly different from each other:  $a_{Ah} = a_{Aw}$ ,  $\Delta\chi^2(1) = .46$ ,  $p = .50$ ;  $a_{Ph} = a_{Pw}$ ,  $\Delta\chi^2(1) = .45$ ,  $p = .50$ ;  $b_{Ah} = b_{Aw}$ ,  $\Delta\chi^2(1) = .28$ ,  $p = .60$ ;  $b_{Ph} = b_{Pw}$ ,  $\Delta\chi^2(1) = .85$ ,  $p = .36$ ;  $c'_{Ah} = c'_{Aw}$ ,  $\Delta\chi^2(1) = .63$ ,  $p = .43$ ; and  $c'_{Ph} = c'_{Pw}$ ,  $\Delta\chi^2(1) = 3.03$ ,  $p = .08$ . While tests of indistinguishability suggested that equality constraints be placed on all husband and wife pathways, the  $a_{Ah}$  and  $a_{Aw}$  pathways were not constrained to be equal because the intrapersonal simple mediation models tested for husbands (in H1c) and for wives (in H1e) suggested that fairness in the division of wage labor did not have a direct effect on collaborative communication for husbands, but it did for wives. These findings made sense given theories concerning societal expectations for enacting masculinity and femininity (see Chapter 5 for the detailed discussion of the above-mentioned findings). Thus, the decision was made to let theory drive the specification of

pathways in this APIMeM, and the pathways from own perception of fairness in the division of wage labor to own use of collaborative communication were estimated separately for husbands and for wives. The final model did not fit the data significantly differently than the unconstrained model ( $\Delta\chi^2(5) = 5.167, p = .60$ ). Overall, this model closely fit the data ( $\chi^2 = 65.79$  (df = 63, n = 120),  $p > .05$ ; RMSEA = .02 (.00 - .06); CFI = 1.00; NNFI = .99).

Wives' perceptions of greater fairness in the division of wage labor ( $a_{Aw} = .14, p = .02$ ), but not husbands' ( $a_{Ah} = .07, p = .27$ ) were associated with greater use of collaborative communication. Greater use of collaborative communication was associated with greater own- ( $b_{Ah} \& b_{Aw} = .65, p = .000$ ) and spouse-assessments ( $b_{Ph} \& b_{Pw} = .23, p = .01$ ) of marital quality. A significant intrapersonal indirect effect was found for wives ( $a_{Aw}b_{Aw} = .09, p = .03$ ), but no significant intrapersonal indirect effects were found for husbands ( $a_{Ah}b_{Ah} = .04, p = .28$ ). Additionally, no interpersonal indirect effects ( $a_{Aw}b_{Ph} \& a_{Ah}b_{Pw} = .02, p = .08$ ) existed. The effect size of the significant intrapersonal indirect effect ( $a_{Aw}b_{Aw}$ ) was medium ( $\kappa^2 = .14$ ). As with all of the other models, there were no significant direct effects of  $X$  on  $Y$  ( $c'_{Ah} \& c'_{Aw} = -.07, p = .11$ ;  $c'_{Ph} \& c'_{Pw} = .01, p = .82$ ). Overall, this model showed that wives' collaborative communication helps enable wives' perceptions of fairness in the division of household labor to have an indirect effect on their assessments of marital quality. (See Figure 15 for standardized pathway estimates, and Tables 11 and 14 for unstandardized pathway and effect estimates.)

The results for H3 show that perception of fairness in the division of household labor has an indirect effect on spouse's marital quality through one's own use of collaborative communication. Additionally, perception of fairness in the division of childcare labor has an indirect effect on spouse's marital quality through one's own use of collaborative communication. Finally, there is no indirect effect of perception of fairness in the division of

wage labor on spouse's marital quality through one's own use of collaborative communication. That being said, all intrapersonal indirect effects (i.e., actor-actor indirect effects) were significant, meaning that one's own perception of fairness in the division of household, childcare, and wage labor was associated with one's greater use of collaborative communication which was associated with one's higher report of marital quality.

#### **Hypothesis 4: Non-Aggressive Communication as an Interpersonal Mediator of Perceptions of Fairness in the Division of Family Labor(s) and Marital Quality**

Hypothesis four, which predicted the presence of interpersonal indirect effects (i.e., indirect effects that go from one dyad member to the other), suggested that husbands' and wives' use of non-aggressive communication would help explain the effect that their own perceptions of fairness have on their spouse's marital quality. Specifically, effects for both husbands and for wives were expected to exist such that the more equitable an individual perceived his/her division(s) of family labor to be, the more likely that individual would be to use non-aggressive communication. As non-aggressive communication was used in larger quantities, it was predicted that spouses' marital quality would increase.

As with H3, the Actor Partner Interdependence Mediation Model (APIMeM; Ledermann & Macho, 2009; Ledermann et al., 2011) was utilized to test these interpersonal hypotheses. The APIMeMs were estimated using latent variable structural equation modeling (SEM).

The results, again, are presented in a variety of ways. First, a diagram with standardized parameters for each APIMeM is presented in Figures 16 (fairness in the division of household labor as initial variable), 17 (fairness in the division of childcare labor as initial variable), and 18 (fairness in the division of wage labor as initial variable). Table 15 contains the unstandardized

parameter estimates for pathways in each APIMeM, and Tables 16, 17, and 18 contain the unstandardized indirect, total indirect, and total effects estimates.

H4a (husband perception of fairness in the division of household labor → husband non-aggressive communication → wife marital quality) predicted that husbands' perceptions of fairness in the division of household labor would have an effect on wives' marital quality through his own use of non-aggressive communication. Specifically, it was predicted that husbands who perceive more fairness in the division of household labor would use more non-aggressive communication. Their higher use of non-aggressive communication was then expected to result in higher assessments of marital quality by their wives. H4b (wife perception of fairness in the division of household labor → wife non-aggressive communication → husband marital quality) predicted that the same relationship would exist for wives. H4a and H4b were tested in a single model. When testing for indistinguishability, the unconstrained model testing H4a and H4b closely fit the data ( $\chi^2 = 92.44$  (df = 111, n = 120),  $p > .05$ ; RMSEA = .00 (.00 - .02); CFI = 1.00; NNFI = .1.03). When equality constraints were placed on the pathways, only one of the six husband and wife effects were found to be significantly different from each other:  $a_{Ah} = a_{Aw}$ ,  $\Delta\chi^2(1) = .23$ ,  $p = .63$ ;  $a_{Ph} = a_{Pw}$ ,  $\Delta\chi^2(1) = .48$ ,  $p = .49$ ;  $b_{Ah} = b_{Aw}$ ,  $\Delta\chi^2(1) = .91$ ,  $p = .34$ ;  $b_{Ph} = b_{Pw}$ ,  $\Delta\chi^2(1) = 5.28$ ,  $p = .02$ ;  $c'_{Ah} = c'_{Aw}$ ,  $\Delta\chi^2(1) = .16$ ,  $p = .69$ ; and  $c'_{Ph} = c'_{Pw}$ ,  $\Delta\chi^2(1) = .63$ ,  $p = .43$ . Additionally, the decision was made to allow the  $a_{Ah}$  and  $a_{Aw}$  pathways to be estimated separately because the intrapersonal simple mediation models tested for husbands (in H2a) and wives (in H2d) revealed that there was a significant effect of own perception of fairness in the division of household labor on own use of non-aggressive communication for husbands, but not for wives. Thus, the final model used to test H4a and H4b had partial indistinguishability because the effect of husbands' non-aggressive communication on wives' marital quality was significantly different

than the effect of wives' non-aggressive communication on husbands' marital quality, and previous analyses suggested that the pathways from own perception of fairness in the division of household labor and own non-aggressive communication use should be estimated separately. Thus, those pathways were uniquely estimated while all other pathways were constrained to be the same. Model fit did not significantly change when constraining all four of the six effects to be equal ( $\Delta\chi^2(4) = 2.95, p = .57$ ), so the more parsimonious model, which assumed partial theoretical indistinguishability, was chosen. This model closely fit the data ( $\chi^2 = 95.39$  (df = 115, n = 120),  $p > .05$ ; RMSEA = .00 (.00 - .02); CFI = 1.00; NNFI = 1.03).

For husbands, perceptions of more fairness in the division of household labor was associated with greater use of non-aggressive communication ( $a_{Ah} = .25, p = .03$ ). There was no significant intrapersonal effect of fairness in the division of household labor on non-aggressive communication for wives ( $a_{Aw} = .11, p = .35$ ). Additionally, greater use of non-aggressive communication was associated with higher own-assessments of marital quality ( $b_{Ah}$  &  $b_{Aw} = .32, p = .001$ ). For wives, greater use of non-aggressive communication was associated with greater assessments of marital quality by husbands ( $b_{Ph} = .54, p = .001$ ), but this effect did not exist for husbands. In other words, husbands' non-aggressive communication did not significantly predict wives' assessments of marital quality ( $b_{Pw} = .19, p = .08$ ). While there were significant relationships between variables in the model, tests of the indirect effects indicated that no indirect effects existed ( $a_{Ah}b_{Ah} = .08, p = .06$ ;  $a_{Aw}b_{Aw} = .04, p = .37$ ;  $a_{Aw}b_{Ph} = .06, p = .37$ ). Additionally, no significant direct effects of  $X$  on  $Y$  were found ( $c'_{Ah}$  &  $c'_{Aw} = .11, p = .20$ ;  $c'_{Ph}$  &  $c'_{Pw} = .02, p = .84$ ). Overall, this model showed that fairness in the division of household labor has an effect on non-aggressive communication for husbands but not for wives, and that wives' non-aggressive communication has an effect on both their own and their husbands' marital

quality while husbands' non-aggressive communication only affect their own marital quality.

While there was evidence of these direct pathways, the effects were not strong enough to enable fairness to have an indirect effect on spouses' marital quality through own non-aggressive communication. Thus, H4a and H4b were not supported. (See Figure 16 for standardized pathway estimates, and Tables 15 and 16 for unstandardized pathway and effect estimates.)

H4c (husband perception of fairness in the division of childcare labor → husband non-aggressive communication → wife marital quality) predicted that husbands who perceived more fairness in the division of childcare labor would be likely to use more non-aggressive communication. Their higher use non-aggressive communication was then expected to result in higher assessments of marital quality by their wives. H4d (wife perception of fairness in the division of childcare labor → wife non-aggressive communication → husband marital quality) predicted that wives who perceive more fairness in the division of childcare labor would use more non-aggressive communication which would result in their husbands reporting higher levels of marital quality.

H4c and H4d were tested in a single APIMeM. The unconstrained model had excellent fit ( $\chi^2 = 139.80$  (df = 183, n = 120),  $p > .05$ ; RMSEA = .00 (.00 - .00); CFI = 1.00; NNFI = 1.06). When equality constraints were placed on the pathways, again, only one of the six husband and wife effects were found to be significantly different from each other:  $a_{Ah} = a_{Aw}$ ,  $\Delta\chi^2(1) = .09$ ,  $p = .76$ ;  $a_{Ph} = a_{Pw}$ ,  $\Delta\chi^2(1) = .46$ ,  $p = .50$ ;  $b_{Ah} = b_{Aw}$ ,  $\Delta\chi^2(1) = .53$ ,  $p = .47$ ;  $b_{Ph} = b_{Pw}$ ,  $\Delta\chi^2(1) = 5.24$ ,  $p = .02$ ;  $c'_{Ah} = c'_{Aw}$ ,  $\Delta\chi^2(1) = .41$ ,  $p = .52$ ; and  $c'_{Ph} = c'_{Pw}$ ,  $\Delta\chi^2(1) = 3.08$ ,  $p = .08$ . These tests indicate that the effect of wives' non-aggressive communication on husbands' marital quality is significantly different than the effect of husbands' non-aggressive communication on wives' marital quality. Thus, these effects were allowed to be freely estimated while all other effects



were able to be constrained to be equal. The model that placed equality constraints on five of the six effects did not fit the data significantly differently than the unconstrained model ( $\Delta\chi^2(5) = 5.65, p = .34$ ), so the more parsimonious model was chosen. This model closely fit the data ( $\chi^2 = 145.45$  (df = 188, n = 120),  $p > .05$ ; RMSEA = .00 (.00 - .00); CFI = 1.00; NNFI = 1.06).

For both husbands and wives, perceptions of greater fairness in the division of childcare labor were not associated with their own use of non-aggressive communication ( $a_{Ah} \& a_{Aw} = .11, p = .24$ ). However, husbands' and wives' perceptions of fairness with the division of childcare labor were approaching a significant association with their spouses' use of non-aggressive communication ( $a_{Ph} \& a_{Pw} = .18, p = .05$ ). Had these parameters reached significance, they would have indicated that when husbands perceived more fairness in the division of childcare labor, their wives were more likely to use more non-aggressive communication and vice versa.

Greater use of non-aggressive communication, then, was associated with greater own-assessments ( $b_{Ah} \& b_{Aw} = .33, p = .001$ ) of marital quality, and with greater spouse-assessments for wives' non-aggressive communication on husbands' marital quality ( $b_{Ph} = .53, p = .001$ ), but not for husbands' non-aggressive communication on wives' marital quality ( $b_{Pw} = .20, p = .07$ ). No significant intrapersonal ( $a_{Ah}b_{Ah} \& a_{Aw}b_{Aw} = .04, p = .27$ ) or interpersonal ( $a_{Aw}b_{Ph} = .06, p = .26$ ;  $a_{Ah}b_{Pw} = .02, p = .33$ ) indirect effects existed. Again, there were no significant direct effects of  $X$  on  $Y$  ( $c'_{Ah} \& c'_{Aw} = .03, p = .77$ ;  $c'_{Ph} \& c'_{Pw} = .03, p = .71$ ). Overall, this model showed that, for both husbands and wives, non-aggressive communication is positively related to their own assessments of marital quality. Additionally, a wife's non-aggressive communication had an effect on her husband's marital quality while her husband's non-aggressive communication did not have an effect on her marital quality. There was not sufficient evidence in this model to suggest any indirect pathways, thus, H4c and H4d were not supported. (See Figure 17 for

standardized pathway estimates, and Tables 15 and 17 for unstandardized pathway and effect estimates.)

The final pair of hypotheses tested, H4e (husband perception of fairness in the division of wage labor → husband non-aggressive communication → wife marital quality) and H4f (wife perception of fairness in the division of wage labor → wife non-aggressive communication → husband marital quality) were tested in a single APIMeM. The unconstrained model had excellent fit ( $\chi^2 = 49.77$  (df = 58, n = 120),  $p > .05$ ; RMSEA = .00 (.00 - .04); CFI = 1.00; NNFI = 1.03). When equality constraints were placed on the pathways, none of the six husband and wife effects were found to be significantly different from each other:  $a_{Ah} = a_{Aw}$ ,  $\Delta\chi^2(1) = .82$ ,  $p = .36$ ;  $a_{Ph} = a_{Pw}$ ,  $\Delta\chi^2(1) = .39$ ,  $p = .53$ ;  $b_{Ah} = b_{Aw}$ ,  $\Delta\chi^2(1) = .66$ ,  $p = .42$ ;  $b_{Ph} = b_{Pw}$ ,  $\Delta\chi^2(1) = 3.11$ ,  $p = .08$ ;  $c'_{Ah} = c'_{Aw}$ ,  $\Delta\chi^2(1) = .24$ ,  $p = .63$ ; and  $c'_{Ph} = c'_{Pw}$ ,  $\Delta\chi^2(1) = .35$ ,  $p = .55$ . The model that constrained all six effects to be equal did not fit the data significantly differently than the unconstrained model ( $\Delta\chi^2(6) = 5.98$ ,  $p = .43$ ), so the model assuming theoretical indistinguishability was chosen. This model also closely fit the data ( $\chi^2 = 55.75$  (df = 64, n = 120),  $p > .05$ ; RMSEA = .00 (.00 - .00); CFI = 1.00; NNFI = 1.02).

As a reminder, because husbands and wives were theoretically indistinguishable, estimates for all husband and wife pathways were constrained to be equal and will not be discussed separately. Husbands' and wives' perceptions of greater fairness in the division of wage labor were associated with greater use of non-aggressive communication ( $a_{Ah}$  &  $a_{Aw} = .16$ ,  $p = .001$ ). Greater use of non-aggressive communication was associated with greater own- ( $b_{Ah}$  &  $b_{Aw} = .35$ ,  $p = .000$ ) and spouse-assessments ( $b_{Ph}$  &  $b_{Pw} = .33$ ,  $p = .000$ ) of marital quality. Significant intrapersonal ( $a_{Ah}b_{Ah}$  &  $a_{Aw}b_{Aw} = .06$ ,  $p = .01$ ) and interpersonal ( $a_{Aw}b_{Ph}$  &  $a_{Ah}b_{Pw} = .05$ ,  $p = .02$ ) indirect effects were found. Effect size estimates indicated that the intrapersonal

indirect effects were medium-sized ( $\kappa^2_{\text{husbands}} = .09$ ;  $\kappa^2_{\text{wives}} = .08$ ) as were the interpersonal indirect effects ( $\kappa^2_{\text{husbands}} = .08$ ;  $\kappa^2_{\text{wives}} = .08$ ). As with all of the other models, there were no significant direct effects of  $X$  on  $Y$  ( $c'_{Ah} \& c'_{Aw} = -.06$   $p = .23$ ;  $c'_{Ph} \& c'_{Pw} = .01$ ,  $p = .78$ ). Overall, this model showed that non-aggressive communication helps enable perceptions of fairness in the division of wage labor to have an indirect effect on marital quality for individuals within marital dyads. Thus, H4e and H4f were supported. (See Figure 18 for standardized pathway estimates, and Tables 15 and 18 for unstandardized pathway and effect estimates.)

The results for H4 show that perceptions of fairness in the division of household and childcare labor do not have an indirect effect on spouse's marital quality through one's own use of non-aggressive communication. Perception of fairness in the division of wage labor, however, does have an indirect effect on spouse's marital quality through one's own use of non-aggressive communication. Additionally, perception of fairness in the division of wage labor has an indirect effect on one's own assessment of marital quality through non-aggressive communication. This means that when husband and wife variables are allowed to exert their influence on one another, greater perceptions of fairness in the division of wage labor are associated with greater marital quality because perceptions of wage labor fairness lead to the use of more non-aggressive communication. When more non-aggressive communication is used, both one's own and one's partner's marital quality increases. These effects were observed for both husbands and wives.

## **CHAPTER V**

### **Discussion**

#### **Scholarly Contributions**

This study sought to investigate the relationships between perceptions of fairness in the divisions of family labor (i.e., paid labor, household labor, and childcare labor) and marital quality for heterosexual married couples by examining how collaborative communication and non-aggressive communication affect those relationships. This research has several scholarly contributions. First, this study adds to research highlighting the important function that collaborative communication can serve in a marital relationship. Past research has stressed the important role that collaboration between spouses can play in enhancing daily mood (Berg et al., 2008) and psychological well-being (Schindler, Berg, Butler, Fortenberry, & Wiebe, 2010) in older couples dealing with illness. Additionally, past research has shown a link between collaborative communication and marital satisfaction in middle-aged and older couples (Berg et al., 2011). This study adds to this accumulation of knowledge with findings concerning the importance of collaborative communication for younger couples who are dealing with the everyday stresses and strains associated with working to maintain a family. Specifically, this study adds the knowledge that collaborative communication is an important outcome associated with the perception of more fairness in the divisions of family labor(s). Because couples who perceived more fairness were more likely to use collaborative communication, those couples were able to experience greater amounts of marital quality.

As was suggested above, this research also contributes to our knowledge about a growing segment of the U.S. population: dual-earner families with young children. The most recent Census figures indicate that 58.5% of all married couples with children under the age of 18 are dual-earner (Bureau of Labor Statistics, 2012b). Thus, this segment of the population is

important to study as the majority of married individuals with children require the wage labor of both adults in the couple to make ends meet. By studying this important segment of the U.S. population, this study speaks to the key role that communication plays in understanding perceptions of fairness in public and private sphere labors and marital quality.

Additionally, this study contributes to communication scholarship through its methodology. This study used dyadic data analysis techniques to test hypotheses concerning intrapersonal and interpersonal direct and indirect effects in marital relationships. The use of dyadic data analysis techniques such as the APIM and APIMeM is in line with current trends in communication research (e.g., Arroyo & Segrin, 2011; Bodenmann, Ledermann, & Bradbury, 2007; Givertz, Woszidlo, Segrin, & Knutson, 2013; Woszidlo & Segrin, 2013). For example, Woszidlo and Segrin (2013) examined the effect that mutual problem solving had on the relationship between spouses' enduring vulnerabilities (i.e., negative affectivity and educational attainment) and marital quality (i.e., personal commitment to the relationship and divorce proneness). They found that husbands' mutual problem solving was able to explain some of their hypothesized relationships as individuals who reported higher levels of education reported greater amounts of marital quality, in part, because husbands used greater amounts of mutual problem solving (Woszidlo & Segrin, 2013). Thus their study, like this one, looked at how communication variables can help to explain relationships that are well established in the literature. This study, like those cited above, adds to the literature because it enables researchers to better understand *how* communication works in marriages.

The methodology in this study also provides communication researchers with knowledge about multiple imputation (MI) and planned missing data designs. Missing data is often described as an omnipresent problem with which scholars in all fields must contend (Enders,

2010; Graham, 2009; Little et al., 2014; Schafer & Graham, 2002). Methodologists have written extensively about the problems associated with list-wise deletion, pairwise deletion, mean substitution, and single imputations; and they have advocated for the use of full information maximum likelihood (FIML) estimation and multiple imputation (MI; Enders, 2010; Graham, 2009; Little et al., 2014; Schafer & Graham, 2002) as the “best practices” for dealing with missing data. Nonetheless, researchers have not yet made great efforts to utilize these well-described processes in their own research (Myers, 2011). For example, Harel, Zimmerman, and Dekhtyar (2008) indicate that only 22% of all the quantitative articles published in major communication journals during 2005-2006 mentioned missing data. Of those that did, 75% of the articles indicated that listwise deletion (i.e., excluding any case with missing values) was the process the researchers used to deal with missing values. Listwise deletion results in biased population estimates as individuals are artificially removed from the population because of their incomplete data (Little et al., 2014). Nine percent of the articles (about 18 of the 196 examined) utilized FIML or MI techniques to deal with missing data, but this number is entirely too low given the ease with which FIML and MI can be implemented in data analysis (Myers, 2011). Thus, better understanding MI processes is important for communication researchers so we, as a discipline, can begin to more fully utilize best practices in our research.

Understanding planned missing data designs is important for communication researchers as planning for missing data can help them collect cross-sectional data without burdening their participants with an excessive number of items. Furthermore, understanding how to implement planned missing data designs can be helpful when communication scholars embark upon longitudinal studies or studies that require the collection of expensive data. For example, communication scholar Kory Floyd conducts research that looks at how affectionate behavior is

related to mental and physical health outcomes. When measuring physical health outcomes, Floyd often has to collect biological samples from his participants (i.e., blood, saliva, etc.; Floyd et al., 2009; Floyd et al., 2010; Floyd & Riforgiate, 2008). These samples are expensive to collect, preserve, and analyze. If researchers looking to conduct research like Floyd knew about planned missing data designs, they could potentially design a study that enabled them to measure a variable through both a self-report questionnaire and biological samples. The self-report questionnaire could be given to all participants, and biological samples could be taken from only a subset of the sample. So long as these processes were random, the missing values could be easily accounted for via FIML or MI processes. The inclusion of a planned missing data design in this study enables other communication researchers to see that these processes are available, legitimate, and easily implemented.

## **General Conclusions**

The following sections will highlight the general conclusions that can be drawn from the various hypotheses tested in this study. Broadly speaking, these conclusions are discussed as they relate to collaborative and non-aggressive communication.

**Collaborative communication.** In this study, collaborative communication was conceptualized as a process by which spouses work together to achieve a goal, solve a problem, or accomplish a task while managing their interpersonal relationship (Berg et al., 2003). The construct was operationalized via its cognitive compensation, interpersonal enjoyment, and frequency of collaboration dimensions. Additionally, the collaborative communication construct was operationalized with a focus on the marital dyad. Thus, collaborative communication scores provided an individual's perception of the collaboration used in their marriage. The cognitive compensation dimension of collaboration highlighted that spouses believed they made better

decisions with their spouse's help than they made alone, and that working together to solve problems was useful because the strengths of one spouse could make up for the weaknesses of the other. The interpersonal enjoyment dimension of collaboration highlighted that working together to solve problems was considered enjoyable because spouses got to support one another, and because working together brought spouses closer. Finally, the frequency dimension highlighted the regularity with which spouses collaborated to solve their problems.

While each hypothesis predicted the existence of an indirect effect (i.e., fairness on marital quality through either collaborative or non-aggressive communication), an indirect effect is the product of two direct effect and, as such, those direct effects also provide information about the relationship among variables. Thus, the remainder of this section on collaborative communication will unfold as follows: first will be a discussion of the direct effects of perception of fairness in the various measured labors on collaborative communication, second will be a discussion of direct effects of collaborative communication on marital quality, and third will be a discussion of the indirect effects of perception of fairness in the various measured labors on marital quality through collaborative communication.

***Perceptions of fairness and their effects on collaborative communication.*** As structural equation modeling (SEM) is a theory-driven enterprise (Mueller, 1997), it is important to remember that equity theory (Walster et al., 1978) guided the creation of all study hypotheses. While equity theory argues that perceptions of fairness should be positively associated with marital quality, one goal of this study was to identify whether or not collaborative communication enabled those relationships to exist. As such, it became important to investigate the direct effects that perceptions of fairness in the divisions of household, childcare, and wage



labor had on collaborative communication. In H1, these direct effects were tested separately for husbands and wives, and in H3, these effects were tested simultaneously.

For both husbands and wives, there were significant positive direct effects of perceptions of fairness in both the divisions of household and childcare labor on collaborative communication. These findings indicate that when both husbands and wives perceive greater fairness in the divisions of household and childcare labor, they are more likely to use collaborative communication (i.e., more likely to solve problems as a marital unit). This makes sense given past research that has found positive relationships between proportional time spent on household labor and marital conflict (Perry-Jenkins & Folk, 1994). If spending more time on household labor than one's spouse tends to increase conflict in marital dyads, it seems logical that more equitable divisions of household and childcare labor would result in greater collaboration, rather than conflict, when dealing with life's stresses and strains.

Results concerning perceptions of fairness in the division of wage labor, however, indicated that wives who perceived greater fairness in the division of wage labor were more likely to use collaborative communication, but there was no relationship between those variables for husbands. Gender norms present one possible explanation for why perceptions of fairness in the division of wage labor predicted collaborative communication use by wives but not husbands. Masculine gender norms indicate that being successful is important to enacting masculinity (Wood, 2013). In fact, Wood (2013) indicates that "many men today [...] say that being a good provider is the primary requirement for manhood" (p. 175). Thus, fairness in the division of wage labor, as a construct, might not be as relevant to husbands because of societal expectations that indicate that they should work long hours to provide for their families. If enacting one's masculinity is tied to wage labor, perhaps the only division of labor that would be

seen as “unfair” or “unjust” would be the division wherein husbands were not performing as many wage labor hours as their wives. Husbands in this scenario might see the division of wage labor responsibilities as “unfair” because they would perceive themselves as “not pulling their weight” rather than being put upon. As husbands ( $M = 43.58$ ,  $SD = 13.39$ ) in this study averaged more wage labor hours than their wives ( $M = 35.58$ ,  $SD = 13.69$ ;  $\chi^2_{(df=2)} = 20.55$ ;  $p < .001$ ), the perception of needing to work long hours to enact one’s masculinity by providing for one’s family might be one reason why this effect was not significant for men.

Gender ideology and gendered norms might also be linked to why women’s perceptions of fairness in the division of wage labor were associated with their greater use of collaborative communication with their husbands. Because women are stereotypically expected to care for the home and the children, when those tasks need to be reallocated (because wives have other responsibilities they must attend to) it likely falls to the women to initiate conversations about how the couple should get all the work done. It is her work, stereotypically, that is not being completed because she is working outside of the home. Thus, women who believe that their husbands fairly share paid labor responsibilities with them might also believe that their husbands would be willing to collaborate to solve issues that confront the marital dyad. Thus, women in this scenario might be more comfortable engaging in collaboration with their husbands. Additionally, women who feel they are fairly dividing wage labor responsibilities might be more likely to engage in collaborative communication with their husbands because they have to in order to be successful in both the public and private sphere. If the wives want to use their educations (92.5% had post-secondary educations), perhaps they need to find a way to enable all the work to get done. So, when wives are working in the public sphere, they need to collaborate with their husbands so all the work can get done.

These interpretations beg the question, “Do wives see working more or fewer hours as fair?” Post-hoc correlational analyses were run to see how wage labor hours related to perceptions of fairness in the division of wage labor for both wives and husbands. Both husbands and wives were asked about their perceptions of fairness in the division of wage labor. They were also both asked to estimate the number of hours that both they and their spouse spent engaged in paid labor each week. Wives’ perceptions of fairness in the division of wage labor were moderately, but significantly and positively linked with the number of hours they worked each week,  $r(118) = .30, p < .01$ . Wives’ perceptions of fairness in the division of wage labor were not linked with either their own reports of partner wage labor hours ( $r(118) = -.03, p > .05$ ), or their partner’s ( $r(118) = -.03, p > .05$ ) self-reports of weekly wage labor hours. Husbands’ perceptions of fairness in the division of wage labor were not related to the number of hours they reported working each week,  $r(118) = -.05, p > .05$ , but their perceptions of fairness in the division of wage labor were linked with their own reports of the number of hours their wives’ engaged in paid labor each week ( $r(118) = .31, p < .001$ ). These positive correlations suggest that for both wives and husbands, wives’ ability to work a greater number of wage labor hours is associated with greater perceptions of fairness in the division of wage labor. These post-hoc analyses lend credibility to the argument that fairness in the division of wage labor enables women, but not men, to utilize more collaborative communication with their spouses because when women are fairly engaging in wage labor, they are working more wage labor hours. When women spend more hours in the public sphere, they need to collaborate with their husbands more to enable the household and childcare labors, which are stereotypically their responsibility, to get done. Husbands do not, stereotypically, have to manage large quantities of work in both the public and private sphere, so their wage labor participation might not require additional

collaboration. Future researchers should attempt to clarify what factors are important to husbands and wives when making assessments about the fairness of their division of wage labor. Knowing what is important to spouses when they make assessments of fairness could help researchers better interpret findings.

H3 expanded on the models tested in H1 (i.e., the results discussed above) by using the Actor Partner Interdependence Mediation Model (APIMeM) to test for the intrapersonal and interpersonal direct effects of fairness in the divisions of household, childcare, and wage labor on collaborative communication. The APIMeM is useful because it allows husband and wife reports to be included in one model. Thus, the APIMeM allows researchers to test how one spouse's variable influences the other spouse's variable. When effects are tested in separate models for husbands and wives, these interpersonal effects cannot be tested.

There were no significant interpersonal direct effects between fairness in the divisions of household, childcare, and wage labor and collaborative communication use, meaning that husbands' perceptions of fairness in the divisions of measured labors did not predict wives' use of collaborative communication, and that wives' perceptions of fairness in the divisions of measured labors did not predict husbands' use of collaborative communication. It is likely one spouse's perception of fairness in the division of labor did not predict the other spouse's use of collaborative communication because the initial variables; perceptions of fairness in the divisions of household, childcare, and wage labor; were individual and internal assessments of the fairness. Each spouse was allowed to have his or her own view on the fairness in the divisions of family labor(s). This perception of fairness is internal, so spouses might not be aware of how their partners perceive fairness in their relationships. Had frequency of communication about the divisions of family labors been measured instead of fairness, interpersonal effects might have

been noticed as both individuals in the dyad would have experienced the communication being measured. Because spouses do not necessarily have access to what is in each other's heads, these interpersonal direct effects were not even hypothesized to exist, and their absence is not regarded as problematic.

All of the APIMeMs indicated the same findings concerning the presence or absence of intrapersonal direct effects between fairness in each type of labor and the use of collaborative communication. Wives had significant effects in all models, and husbands had significant effects in the fairness in the division of household and childcare labor models, but not in the wage labor model. In other words, all models except the husband wage labor fairness model showed that perceiving more fairness in the division of family labors lead individuals to use more collaborative communication in their relationships. Finding similar effects between the models tested on husband and wife data separately and husband and wife data jointly is important to note as it indicates that the intrapersonal effects observed in the simple mediation models are still present as the APIMeM accounts for the interdependence of marital partners.

Again, it is likely that wives, but not husbands, indicated that greater own perceptions of fairness in the divisions of wage labor predicted greater own use of collaborative communication because of societal expectations for men and women. Men are expected to be providers, so fairness in the division of wage labor might not be as relevant to men because they walk into marriage and child-rearing assuming that they ought to be performing more wage labor (i.e., earning more money and being the breadwinner; Wood, 2013). Societal expectations for women and mothers, on the other hand, indicate that women ought to be "superwomen" and flawlessly be able to juggle building a successful career, maintaining a home, and raising children (Wood, 2013). While wives are required to be successful in all realms to be considered "good women,"

“good wives,” and “good mothers,” men only really need to be successful in wage and childcare labor to enact the role of “good man,” “good father,” and “good husband.” Wage labor, however, is still likely the most relevant factor when assessing men’s worth as a father because being a “good father” requires spending time with one’s children, but more importantly with earning enough to provide for one’s children. So again, “fairness” may simply be a more relevant construct for women because they are the sex that society indicates ought to “have it all,” and they are the sex society believes should be doing most of the household and childcare labors.

The direct effects discussed in this section (i.e., the direct effects of fairness on collaborative communication) can be explained through an equity theory lens. Equity theory predicts that couples who see more equitable (or just) ratios of costs to benefits in their relationship will be more likely to work to maintain their relationships (Walster et al., 1978). When equity theory is used as the basis of discussions of distributive justice and fairness (K. S. Cook & Messick, 1983; Messick & Sentis, 1983), the equity argument moves beyond equitable ratios of costs to benefits and begins to look at equitable divisions of labors and resources within a relationship. Thus, when labors are divided equally, relational partners are expected to be more willing to maintain their relationships. As collaborative communication is one mechanism by which spouses can maintain their relationship—because they’d be working together to solve problems rather than fighting about the problems—this finding makes sense within an equity theory lens.

***Collaborative communication and its effect on marital quality.*** All hypotheses predicted positive relationships between collaborative communication and marital quality. H1 predicted these effects would be intrapersonal, and H3 posited the presence of interpersonal effects. This means that H1 predicted that a husband or wife’s use of collaborative communication would be

associated with his or her own marital quality, and that H3 predicted that a husband or wife's use of collaborative communication would be associated with his or her spouse's marital quality. A very clear finding in this study was that collaborative communication positively predicts marital quality. All models that allowed collaborative communication to have a direct effect on marital quality indicated that greater use of collaborative communication was associated with greater assessments of marital quality. While the estimated intrapersonal effects tended to be stronger, all models in H3 found significant interpersonal effects of collaborative communication on spousal assessments of marital quality. This means that greater use of collaborative communication was associated with higher own- and spousal-assessments of marital quality. While past research has established a positive link between collaborative communication and marital satisfaction in middle-aged and older couples (Berg et al., 2011), this study showed that collaborative communication is important to younger couples as well. These findings are in line with past research reporting that the collaborating conflict management style had a greater correlation with marital satisfaction than the compromising, competing, avoiding, or accommodating styles (Greeff & De Bruyne, 2000). Thus, future research should continue to examine the ways that collaborative communication functions in interpersonal relationships.

***Collaborative communication and its indirect effects.*** The final effects concerning collaborative communication that will be discussed are the indirect effects of fairness in the divisions of household, childcare, and wage labor on marital quality through collaborative communication. As a reminder, positing that collaborative communication was a mediating variable meant that collaborative communication was expected to be a variable through which fairness was able to exert its influence on quality. Thus, it was expected that individuals who perceived more fairness in the divisions of household, childcare, and wage labor would report

using more collaborative communication. In turn, those individuals who used more collaborative communication were expected to report greater levels of marital quality. The indirect effect, essentially, means that fairness is able to have an effect on marital quality because it causes more collaboration which causes more marital quality. Thus, collaborative communication enables the indirect effect to occur.

H1 tested intrapersonal indirect effects. Thus, at no time were husband and wife variables allowed to exert an influence on one another. Significant indirect effects of perceptions of fairness in the divisions of household, childcare, or wage labor on marital quality through collaborative communication were observed in all situations except for husbands' perceptions of fairness in the division of wage labor. The rationale for the non-existence of this effect for husbands (and the existence of this effect for wives) is the same as the one offered above (gendered expectations for appropriate masculine and feminine behaviors). The assumption that successfully providing for one's family is the most important part of the masculine gender identity might make it so that husbands do not see their wage labor performance as connected to their marriages. While women might conceptualize paid labor as necessary to caring for one's family, men may experience the drive to be successful at work regardless of their marital and parental status. Thus, for men, fairness in the division of wage labor might not be relevant when looking at marital outcomes because as good men they are not supposed to feel that they are doing "too much" of the wage labor. Additionally, because men feel societal pressures to be the breadwinners in their relationships, even when they feel that their divisions of wage labor are "unfair," they are likely not going to associate that "unfairness" with their wives' lack of wage labor production. Thus, the unfairness that a man feels concerning the division of wage labor is not associated with his use of collaborative communication because society, and not his wife, is



to blame for any unfairness he might feel. Therefore, he is not going to change how he communicates so as to show either his satisfaction or dissatisfaction with the proportion of wage labor he is expected to provide as his assessment of fairness is irrelevant to his decisions concerning how much collaboration to use with his spouse.

The idea that husbands might not see their wage labor, and thus the fairness in how they and their spouse divide that wage labor, as connected to marital outcomes is further exemplified in the indirect effects observed in H3 (i.e., the indirect effects observed in the APIMeMs which allowed for husband and wife variables to be modeled simultaneously). As the findings concerning the intrapersonal indirect effects observed in the APIMeMs are identical to the findings concerning the intrapersonal indirect effects in the simple mediation models (i.e., the findings discussed in the previous paragraph), this paragraph will focus on the presence or absence of interpersonal indirect effects; all the same intrapersonal indirect effects existed. When looking at the ability of both fairness in the division of household and childcare labor to predict marital quality via collaborative communication, findings indicated that perceptions of fairness in the divisions of household and childcare labor were associated with both own and partner assessments of marital quality. These findings are interesting because they highlight the fact that an individual's perceptions of fairness and collaborative communicative behaviors not only significantly influence their experiences, but they also significantly influence the experiences of their partners. Thus, perceiving more fairness in the divisions of household and childcare labor is desirable for a spouse because it results in an increased use of collaborative communication which results in increases in marital quality for both spouses (e.g., husbands' fairness leads to husbands' greater collaboration which leads to greater assessments of marital quality for both husbands and wives). The links between perceptions of fairness in household and childcare labor

and marital quality through collaborative communication make sense because all of the variables in these models are contextually located within the family. Household and childcare labors are typically performed within the family home, collaboration (as it was measured in this study) happens with one's spouse, and marital quality is shared with one's spouse.

Power might also be relevant when trying to understand why these indirect effects were observed. In a capitalist society, wage labor is more powerful labor while household and childcare labors are less powerful labors. Because these labors are imbued with less power, individuals who perform more household and childcare labors might feel that there is a lack of appropriate rewards to compensate them for their costs. Thus, individuals who perform more household and childcare labors (i.e., labors for the family) might not notice equity in the sharing of family tasks. As equity theory and the distributive justice perspective imply, a lack of equity/distributive justice is expected to be associated with lower relational satisfaction (Carrell & Dittrich, 1978; K. S. Cook & Messick, 1983; Walster et al., 1978). Thus, as individuals perceive more fairness in the divisions of powerless labors, they are likely seeing that their spouses are helping to ease their burden and that their divisions of labor are more equitable. When things are more equitable, marital quality increases. These findings show that quality goes up in these situations because individuals who perceive more fairness in the division of household and childcare labor use more collaborative communication.

Concerning the indirect effects associated with fairness in wage labor, the only effect that existed was wives' intrapersonal indirect effect of perception of fairness in wage labor on marital quality through collaborative communication (i.e., no interpersonal effects existed). So, when wives perceive more fairness in the division of wage labor, they report greater marital quality, in part, because of the increase in collaborative communication that is associated with perceiving

more fairness. This finding implies that fairness in wage labor is more relevant to women than men. As women are still not treated as equals in the public sphere, women may need to find more fairness with how they divide public sphere labors with their husbands so that they can invest the time and energy into their careers that is required to “get ahead.” Thus, women may need the support of their husbands to achieve their organizational goals because oftentimes achieving these goals comes with a decrease in the time available to complete household and childcare labors (i.e., a decrease in the labors a woman is expected to provide). As society expects that women will care for the house and children and that men will labor in the public sphere to bring home a salary, women need men to be accepting and supportive of their wage labor participation if they are to advance in their careers. Men are taught they can expect that women will do the household and childcare labors needed to enable them (i.e., the men) to focus their time on wage labor duties. So, fairness in the division of wage labor simply might be more relevant to women because women need men to take on tasks they would stereotypically be performing were they not working in the public sphere. This too, then comes down to power. Fairness is more relevant in the divisions of less powerful labor and it becomes relevant in wage labor (i.e., the more powerful division of labor) only for the individual with less power.

Thus, for women, greater fairness in the division of wage labor is associated with a greater use of collaborative communication because couples have to work together to determine what is equitable and feasible in terms of dividing paid labor responsibilities. Men do not need to work with their spouses to determine what is fair because society has already told men what to expect: hard work, excessive hours, and breadwinning wages. As women work to discuss how those labors will be divided, they enhance their collaborative communication toolbox by realizing that one’s spouse can help when difficulties arise (i.e., cognitive compensation), and by

realizing it is enjoyable to work with one's spouse to solve problems (i.e., interpersonal enjoyment). Realizing that collaboration is both helpful and relationally satisfying might lead to an increase in the frequency with which couples use it.

So, perhaps collaborative communication functions differently for wives because wives, more so than husbands, see the division of wage labor as a problem to be solved. As they work together to solve the problem, they increase the collaboration used in their relationship and in doing so increase the quality of their relationships.

**Non-aggressive communication.** The second communication behavior of interest in this study was non-aggressive communication. In this study, non-aggressive communication was conceptualized as a communication trait that inspires individuals to behave benevolently when interacting with others (Levine et al., 2004). The operationalization of this benevolent non-aggressive communication style highlights that individuals who possess this trait tend to be kind to individuals who are not very intelligent and individuals they dislike, and tend to refrain from attacking the self-concepts of others (Infante & Wigley, 1986). This trait is considered to be the opposite of the verbal aggressiveness trait which has been linked with outcomes such as marital violence (Infante, Chandler, & Rudd, 1989) and dissolution (Gottman, 2000). If the presence of verbally aggressive behaviors is linked with relational dissolution, the lack of those behaviors likely enables the greater functioning of a marriage.

As the results are discussed, it is important to recall that non-aggressive communication is conceptualized as a communication trait. This means that individuals have predispositions to communicate either in more, or less, aggressive ways. In this study, there was a significant difference ( $\chi^2_{(df=2)} = 19.19, p < .001$ ) between the amount of non-aggressive communication reported by husbands ( $M = 3.52, SD = .68$ ) and by wives ( $M = 3.88, SD = .58$ ). This observation

in these data is consistent with past research that has indicated that men tend to score higher in trait verbal aggressiveness than women (Archer, 2004). Additionally, the questions that comprise the measurement scale do not specifically ask participants to talk about the non-aggressive communication they use in their marriages. Therefore, it is likely that participants were thinking of how they communicate in their marriages, as most questionnaire items were marriage-specific. Nonetheless, it is unknown whether or not participants were referring to their use of non-aggressive communication in general, or if they were referring to their use of non-aggressive communication in their marriages. (As non-aggressive communication is considered a trait, the fact that questions were not contextualized to only be relevant to marital interactions should not matter as an individual would be expected to display the trait communication behavior regardless of context. Nonetheless, this is a limitation of this research.)

As with the previous discussion, all of findings associated with non-aggressive communication will be discussed as follows: first will be a discussion of the direct effects of perception of fairness in the various measured labors on non-aggressive communication, second will be a discussion of the direct effects of non-aggressive communication on marital quality, and third will be a discussion of the indirect effects of perceptions of fairness in the various measured labors on marital quality through non-aggressive communication.

**Perceptions of fairness and their effects on non-aggressive communication.** When looking at the intrapersonal direct effects of perceptions of fairness in the divisions of household, childcare, and wage labor on the use of non-aggressive communication that were measured in husband- and wife-only models (i.e., H2), many differences in effects were observed for both husbands and wives. Thus, perception of fairness in each type of labor will be discussed in order.

First, when looking at perceptions of fairness in the divisions of household labor, men's use of non-aggressive communication was significantly predicted by their perceptions of more fairness in the division of household labor, but women's was not. While it was hypothesized that these effects would exist for both husbands and wives, one possible reason why there was no significant direct effect for wives could be that women tend to be lower in trait verbal aggressiveness (i.e., higher in trait non-aggressiveness; (Archer, 2004) because, growing up, they were expected to communicate in more supportive and benevolent ways. Wood (2013) indicates that growing up feminine, girls "are encouraged to soften their opinions and to accommodate others, particularly males" (p. 181). Thus women who perceive greater fairness in the division of household labor do not report greater use of non-aggressive communication because they have been taught that women ought to communicate non-aggressively in most contexts. Past research concerning the division of household labor has found that women tend to refrain from communicating discontent with their proportionally greater number of household labor hours because they are fearful of creating conflict which can cause damage to their relationships (Hochschild & Machung, 2012; Perry-Jenkins & Folk, 1994). The presence of a significant relationship between men's perception of fairness in the division of household labor and their use of non-aggressive communication might exist because of a third variable, gender ideology. Gender ideology concerns an individual's "level of support for a division of paid work and family responsibilities that is based on the notion of separate spheres" (Shannon & Greenstein, 2009, p. 89). Husbands who believe that decisions about the divisions of labor ought not to be based on gendered spheres (i.e., those with more egalitarian gender ideologies) tend to do more housework than husbands who believe the opposite (Bianchi et al., 2000; Cunningham, 2005; Greenstein, 1996a, 1996b; Ishii-Kuntz & Coltrane, 1992). Perhaps men who hold gender

ideologies that enable them to perform more feminized labor also feel comfortable communicating in stereotypically more “feminine” ways (i.e., less aggressively). Future research should attempt to validly measure and control for the effects of gender ideology.

When looking to the direct effect of one’s own perception of fairness in the division of childcare labor on his/her own use of non-aggressive communication, no significant effects existed for either husbands or wives. Accepting the argument that men who hold more egalitarian gender ideologies might be lower in trait verbal aggressiveness, one would expect that men who see more fairness in the division of childcare labor would also use more non-aggressive communication. This relationship might not have been observed, however, because of growing expectations that fathers do more than simply provide financially for their children. Aumann et al. (2011) discuss the discovery of a “new male mystique,” which is the requirement that men be more egalitarian (i.e., participate in more household and childcare labors) while simultaneously fulfilling traditional male breadwinner expectations. They note that these breadwinner expectations are becoming increasingly difficult to attain as, “flat earnings, long hours, increasing job demands, blurred boundaries between work and home life, and declining job security all contribute to the pressures men face to succeed at work and at home” (Aumann et al., 2011, p. 1). The literature on fathering echoes these sentiments as the twenty-first century father is expected to provide both physical and emotional care for his children (Coltrane, 1997; Lamb, 2004). Thus, with societal expectations of greater paternal childcare labor responsibilities, perhaps men feel compelled to do more childcare labor, and as such would perceive a more fairly balanced division of childcare labor, without necessarily holding a more egalitarian gender ideology. In other words, maybe men who believe that labor ought to be divided along gender lines (i.e., those with traditional ideologies) are still more willing to do childcare labor today

because societal messages dictate that good men are good fathers, and good fathers do more than pay for things for their children. More fairness in the division of childcare labors, then, might not be associated with increased non-aggressive communication because the men who take on more childcare responsibilities might not actually be adopting a more egalitarian ideology. They might simply be performing the duties that enable them to be considered “good men.” Recall that above, the suggestion was forwarded that men who report more egalitarian ideologies might also report using more non-aggressive communication than men who report more traditional gender ideologies. Thus these findings support the idea that aggressive communication might be linked more closely to gender ideology than to biological sex.

Finally, when looking at fairness in the division of wage labor, both husbands and wives had significant positive effects of perceptions of fairness in the division of wage labor on non-aggressive communication. The fact that these effects were significant for both sexes, while the household and childcare labor effects were not, may have less to do with the social construction of gender and more to do with the fact that this labor exists in the public sphere. As wage labor is public sphere labor, it necessitates that individuals who engage in wage labor also interact with others to achieve organizational goals. As such, non-aggressive communication could be linked to perceptions of fairness in wage labor because a non-aggressive communication style might be necessary in organizational settings. A review of the literature on argumentative and verbally aggressive communication indicated that teaching organizational members to argue their positions in ways that are self- and other-affirming might be advantageous to organizations (Infante & Rancer, 1996). This is because subordinates indicate greater satisfaction at work when their superiors are respectful of their self-concepts and work to build (rather than destroy) their self-confidence (Infante & Gorden, 1985). In other words, it is important to teach organizational



members how to communicate non-aggressively because non-aggressive communication is valued by organizational members. Thus, perhaps it is the organizational context in which wage labor occurs that enables the link between perceptions of fairness in the division of wage labor and non-aggressive communication to occur for both husbands and wives.

This is not to say that being non-aggressive in one's personal life would not also be advantageous. Verbally aggressive behavior in relationships has been linked to outcomes such as hurt feelings and egos, anger, resentment, relational dissolution, and even physical violence (Infante & Wigley, 1986). Clearly, communicating in non-aggressive ways is advantageous for relational partners. This effect might be seen in organizations, however, because the immediate costs of behaving in a verbally aggressive manner might be greater. When individuals are difficult to work with, they are often labeled as problematic employees and are not as readily praised or promoted within the organization. Likewise, if the aggressiveness displayed at work is too great, one could be fired. When individuals are aggressive to their spouses, however, those bad behaviors might be overlooked, initially, for a variety of reasons. For example, transgressions might be forgiven because (a) they are blamed on other events such as a bad day at work, (b) the couple has accumulated enough positive interactions to offset the negative effects of the verbally aggressive behaviors, or (c) the investment in the relationship is too great to terminate the relationship (e.g., children, mortgage, etc.). Undoubtedly, there are costs to behaving in verbally aggressive ways at both work and home. Because the immediate costs are likely greater at work, individuals might be more cognizant of their verbally aggressive behaviors in that context and therefore work to minimize their verbally aggressive tendencies in the workplace.

When looking at these relationships in the models using the APIMeM to model husband and wife variables simultaneously (H4), the same relationships existed such that when looking at fairness in the division of household labor, only husband intrapersonal direct effects on non-aggressive communication existed; when looking at fairness in the division of childcare labor, no intrapersonal direct effects on non-aggressive communication existed; and when looking at fairness in the division of wage labor, intrapersonal direct effects on non-aggressive communication existed for both husbands and wives.

The findings concerning the direct effects of perceptions of fairness in the divisions of household, childcare, and wage labor on non-aggressive communication are not necessarily in line with what equity theory would posit. Equity theory and the distributive justice perspective suggests that when couples perceive more fairness in the divisions of household, childcare, and wage labor they will be more likely to maintain their relationships (Carrell & Dittrich, 1978; Mikula, 2012; Walster et al., 1978). Because trait verbal aggression is seen as destructive to relationships (Infante et al., 1989; Infante, Myers, & Buerkel, 1994; Infante & Rancer, 1996), it was assumed that being low in trait-verbal aggressiveness would be associated with a perception of fairness in the divisions of family labor. This was not the case. Perhaps the rationale for why collaborative communication was almost always a result of a perception of more fairness and non-aggressive communication was almost never a result of a perception of more fairness has to do with how the construct is measured. First, collaboration was measured by asking questions about how an individual feels about collaborating with one's spouse. Thus, collaboration was couched in the relationship because of how it was measured. Non-aggressive communication was not relationship-specific, which could have resulted in its lack of a relationship with the relational variables of fairness and quality. Also, the non-aggressive scale measures a

communication trait, meaning that individuals are expected to have a disposition toward communicating in ways that are either more or less verbally aggressive (Infante & Wigley, 1986). Thus, the degree of fairness one perceives might not inspire an individual to communicate in a way that is different than how he or she is predisposed.

***Non-aggressive communication and its effects on marital quality.*** All intrapersonal effects between non-aggressive communication and marital quality were significant and positive. These findings are consistent with past literature which has found that verbal aggressiveness (i.e., behaviors that are opposite of the non-aggressive behaviors measured in this study) is negatively related to marital satisfaction (Payne & Sabourin, 1990; Rancer, Baukus, & Amato, 1986). Additionally, most of Gottman's research highlights that fact that couples who resort to using verbally aggressive behaviors in their marriages risk lower satisfaction and ultimately chances of marital dissolution (Gottman, 2000; Gottman & Silver, 1999). Thus, this study made it clear that non-aggressive communication, no matter which spouse is using it, had a positive and significant effect on one's own assessment of marital quality. When looking at the interpersonal effects of non-aggression on marital quality, however, results indicated that wives' non-aggressive communication was related to husbands' marital quality in all three models, but husbands' non-aggression was only related to wives' marital quality in the wage labor model.

When trying to understand this finding, it may be important to look at nagging. Nagging is conceptualized as persistent persuasion, meaning that when nagging occurs it is an individual's attempt to get a relational other to comply with a request to either start or stop performing a particular behavior (Soule, 2010). Nagging requires that the relational other not comply with a request immediately as nagging occurs when a relational member persistently asks for compliance. Nagging is common in many types of interpersonal relationships, but generally,

nagging is seen as a more feminine rather than masculine behavior. This is partly due to the fact that men nag other men while women nag both men and women (Soule, 2010). In other words, women do more nagging and do not seem to discriminate against others when deciding whom to nag. Thus, the behavior is more associated with women than with men. Additionally, Soule (2010) indicated that women are more likely to comply with requests the first time they are asked, so in cross-sex relationships that means men are less likely to nag simply because women are complying with requests more readily.

Taking a relational power perspective, women's greater use of nagging behaviors (and men's greater use of nagging behaviors with other men) makes sense as women stereotypically hold less power than men. Because men tend to hold more relational power, it is likely that they do not need to nag women because women's lack of power leads them to quickly comply with men's requests. Additionally, because men have more relational power than women, they can exert that power by not complying with a woman's request immediately. This would result in her asking for compliance a second, third, or fourth time (i.e., nagging; Soule, 2010)

Additionally, nagging might be used more often by females than males because nagging is one way to keep from escalating the aggression in a scenario. Take for example a wife's request that her husband vacuum the living room rug. If she makes this request of him and he does not comply, she has two options. First, she can continually ask him to comply until he performs the desired action (i.e., she can nag him to complete the chore). Second, she could escalate the aggressiveness in the situation and be more forceful in her persuasive communication. Soule (2010) argues that women are more likely to nag than become aggressive because nagging communicates concern for the other as, "you only nag someone you care about" (p. 198). Additionally, as women are less likely to be high in verbal aggressiveness (Archer,

2004), perhaps they are more likely to nag because they are uncomfortable with using more aggression to gain compliance with a request. While nagging can be seen as a mechanism that protects the relational other from escalating aggressiveness, when small requests are not complied with, aggression can build as the relational other feels angrier and angrier that their request for compliance is not attended to. Thus, men might see nagging behaviors as aggressive behaviors because as women continually ask for compliance with a task, they eventually use more aggressive language so as to gain compliance.

No matter the reasons why, husbands might perceive that wives who engage in more non-aggressive behaviors nag less. When men perceive that their wives nag less (i.e., their wives are more non-aggressive), their perceptions of marital quality increase. Thus, this relationship is seen for women and not men because women need to nag more than men do to gain compliance in the private sphere. Perhaps, then, husbands' non-aggression is linked with wives' marital quality in wage labor contexts because husbands and wives might need to be more non-aggressive when communicating with organizational members who have more power than they do. So again, non-aggressive communication is more relevant to husbands in public sphere labor, while non-aggressive communication is relevant to wives in both public and private sphere labors.

The fact that wives' non-aggressive communication was linked with husbands' assessments of marital quality is in line with Gottman and Silver's (1999) findings concerning effective conflict management styles in marital couples. Gottman and Silver found that when arguments are started harshly (i.e., more verbally-aggressively) they tend to be less productive. Further, they found that husbands are more likely than wives to want to avoid having conversations about difficult marital issues, and wives are more likely to initiate conversations about difficult issues (Gottman & Silver, 1999). Additionally, wives are more likely to use a

harsher startup when initiating conversations about difficult issues. Gottman and Silver suggest that individuals remember to soften the startup of a discussion so that one's relational partner does not feel attacked and the couple can work together to resolve the issue. Wives who are more non-aggressive might approach difficult discussions with a less-harsh startup and as such enable their husbands to perceive greater quality in their marriage.

*Non-aggressive communication and its indirect effects.* The only indirect effects associated with non-aggression that were observed were those that allowed husbands' and wives' perceptions of fairness in the division of wage labor to have an effect on marital quality through non-aggressive communication. These indirect effects were both intrapersonal and interpersonal. The interpersonal indirect effects were actor-partner effects, meaning that an individual's perceptions of fairness affected his/her own non-aggressive communication behaviors (an actor effect) which then affected the marital quality of his/her partner (a partner effect). Thus, these findings were in line with the predictions made in H4e and H4f. One reason why this indirect effect might exist in work but not home contexts is because of the lack of power individuals have in their organizations. Even though an individual is predisposed to use more or less verbally aggressive behaviors, individuals might have to learn how to control those behaviors in organizational settings if they want to be able to advance in the organization. So, perhaps though participating in organizations individuals learn the importance of enacting more non-aggressive communication behaviors. Note, this interpretation of non-aggression as something that an individual can control in particular scenarios should be taken with caution as an individual's level of verbal aggression is expected to be trait-like in nature. Thus, we cannot be sure whether people are non-aggressive in general or if they are able to control their levels of aggression and use aggression appropriately in different contexts. Past scholarship hints at that the ability of

individuals to learn to control their aggression because communication skills training (e.g., training in negotiation, empathy, problem solving, and argumentativeness) is identified as a way to help individuals learn how to control their verbally-aggressive nature (Infante, 1995).

Furthermore, the assessment of fairness in the division of wage labor might be easier for couples to provide because chances are they have had conversations about what that division will look like. As organizational members, the individuals in the couple need to meet the requests of their organizational supervisors and peers. Thus, the control concerning when, where, and how often wage labor is completed is often outside of the control of the marital partners. Thus, the risk of talking about this division of labor is not as great, seeing as the individual is not in complete control of this division of labor. Thus, in the context of wage labor, fairness might lead to non-aggressive communication (which leads to marital quality) because there is no need to get aggressive when discussing the division of wage labor. As the production of wage labor is often outside the control of marital partners, the need for a discussion about this division of labor is less-likely to be associated with verbally aggressive behaviors because the partner requesting more fairness is not doing so because of a perceived fault in the other partner. Requests for more fairness in the divisions of household and childcare labor imply that the individual who is not contributing his/her fair share has done something wrong. As Gottman and Silver (1999) point out, when an individual feels criticized he/she might not be open to engaging in a constructive discussion concerning fixing that relational problem. Thus, the fact that couples lack control over fairness in the division of wage labor might be one reason why only perceptions of fairness in this realm are indirectly associated with marital quality through non-aggressive communication.

**Perceptions of fairness in the division of household, childcare, and wage labor.** One final conclusion that can be drawn from these data concerns husbands' and wives' mean

perceptions of fairness in the divisions of household, childcare, and wage labor. Table 3 includes all study variables, their theoretical range, and husbands' and wives' mean values on those scales. When looking to perception fairness in the division of household labor, the Wald test of mean difference indicates that husbands perceive more fairness in the division of household labors than wives do. That being said, it is important to note that husbands' mean on this variable was 4.29 ( $SD = 1.23$ ). On a scale of 1 to 7, this indicates that husbands "neither agreed nor disagreed" with the notion that they fairly divided household labor responsibilities with their spouses. Wives' mean of 3.78 ( $SD = 1.28$ ) was significantly lower than husbands' ( $\chi^2_{(df=2)} = 20.88, p < .001$ ), but it was also so low that it was associated with indicating that wives "somewhat disagreed" with the notion that they fairly divide household labor responsibilities with their spouses.

In terms of childcare labor, husbands reported a mean of 4.97 ( $SD = 1.21$ ) which indicated that they "somewhat agreed" with the notion that they fairly divide childcare labor responsibilities with their spouses. Wives reported a mean of 4.48 ( $SD = 1.45$ ) which is significantly less fairness than husbands reported ( $\chi^2_{(df=2)} = 19.02, p < .001$ ).

In terms of wage labor, husbands and wives did not differ in the mean scores they provided, as both indicated that they "somewhat agreed" with the notion that they fairly divide wage labor responsibilities with their spouses.

In the end, the conclusion that can be drawn from these means and tests of mean differences is that the couples in this study reported perceptions of fairness that were in line with what current data indicate. Couples did not perceive much fairness in the divisions of household and childcare labor, and current data suggests that wives still are expected to perform a disproportionate amount of both of these labors (Bureau of Labor Statistics, 2013). Furthermore,



these data indicate that husbands and wives are both aware of the larger inequity in fairness in the division of household labor as compared to the division of childcare labor (Aumann et al., 2011; Galinsky et al., 2009).

### **Implications of the Current Research**

**Theoretical implications.** The results of this study, specifically the results concerning collaborative communication, imply that communication is an important variable to consider when understanding how the divisions of family labor are linked to relational outcomes such as marital quality. Positive communication behaviors have the ability to enhance relationships and as such their use should continue to be investigated by communication researchers.

Furthermore, the findings in this study imply that fairness in the divisions of family labor is still much more relevant to women than men, likely because women are still expected to perform more household and childcare labors than men. While men in the U.S. report doing more household and childcare labor than they have in the past (Galinsky et al., 2009), the participants in this study did not indicate that either partner saw the division of household and childcare labors as particularly “fair.” This finding implies that individuals need to be cautious when they talk about the strain that changing societal expectations for men (expectations that ask them to more fairly participate in household and childcare labors while simultaneously bearing the burden of being the breadwinner) is having on husbands and fathers. A recent study indicated that, “men are experiencing what women experienced when they first entered the workforce in record numbers—the pressure to ‘do it all in order to have it all’” (Aumann et al., 2011). While men are undoubtedly performing more labor than they have in the past, research consistently shows that they are not matching the labor provided by their wives. Thus, discussions of the negative effects on the male psyche that are associated with all the extra labor that men are

performing for their wives hides the fact that women are still doing more of this labor. Thus, the cultural expectation is still that women perform household and childcare labors. Men are applauded when they take on a little bit more, and the hard work women perform in each of these realms continues to be overshadowed by the small gains that men are making in the traditionally feminized private sphere.

Overall, equity theory fared quite well in the testing of these hypotheses. Equity theory posits that individuals will be happier in their relationships and enact behaviors that are supportive of those relationships when individuals perceive that they and their relational partners are equitably experiencing both costs and rewards. This study predicted that collaborative communication and non-aggressive communication would be two supportive behaviors that couples would enact when they perceived that they and their spouses were more fairly dividing household, childcare, and wage labors. As the results concerned collaborative communication, by and large the equity theory hypotheses were supported. Fairness led to increased marital quality because couples who perceive more fairness enacted more collaborative communication behaviors.

The results concerning non-aggressive communication were not as supportive of the equity theory hypotheses. Perceiving more equality in the divisions of household and childcare labor was not indirectly linked with marital quality through spouses' use of non-aggressive communication. Perceiving more equality in the division of wage labor, however, was linked with greater marital quality because more fairness was linked with a greater use of non-aggressive communication. The findings that fairness did not always lead to the use of more non-aggression communication, a positive communication trait that would enable the building of a strong relationship, might have been because non-aggression is a communication trait and not a

communication choice. Future research needs to investigate the trait-like nature of non-aggressive communication as the results concerning wage labor seemed to imply that individuals might be able to control the expression of this trait in work contexts.

Thus, contrary to what equity theory would posit, individuals who perceived more fairness in household and childcare labor did not utilize more non-aggressive communication. More research should be conducted to better understand why this occurred, but most likely these relationships were not observed because non-aggressive communication is a communication trait and not necessarily a controllable communication behavior.

**Practical implications.** This research offers several practical implications for couples. First, these findings imply that it is important for husbands and wives to communicate, in respectful ways, about the divisions of the various labors they perform to build and maintain their families. The findings consistently showed that perceptions of fairness are linked to the increased use of collaborative communication which is linked to increased marital quality (for both husbands and wives in most cases). This implies that seeking out more fairness in the divisions of family labors is important because perceptions of fairness can lead couples to employ more positive communication behaviors, which can then allow for the experience of greater marital quality. A caveat here, however, is that past research has shown that women are not always likely to initiate conversations about sharing household labors, as they are typically required for women and optional for men, because they believe that the conversation will result in marital conflict (Perry-Jenkins & Folk, 1994; Wilkie, Ferree, & Ratcliff, 1998). Thus, husbands and wives should pay attention to the suggestions of Gottman and Silver (1999) as they attempt to initiate conversations about relational problems: “(1) soften your startup, (2) learn to

make and receive repair attempts, (3) soothe yourself and each other, (4) compromise, (5) be tolerant of each other's faults" (p. 158).

Another implication of this research is that communicating fairness is something that couples do not know how to do, have not thought to do, or do not care to do. These data indicate that husbands and wives do not perceive much fairness in the divisions of household and childcare labors (even though husbands perceive less unfairness than their wives). Future research should focus on illuminating reasons why individuals refrain from discussing fairness in the division of household and childcare labors as well as determining which communication behaviors enable more successful discussions of unfairness in these divisions of labor. As divorce rates in the U.S. are still high (Centers for Disease Control and Prevention, 2013), finding ways to enable marital dyads to effectively deal with known stressors is an important avenue for researchers to pursue.

### **Limitations of the Current Research**

While this research offered many contributions to scholarship, it was not without its limitations. First and foremost the use of multiply imputed data in this study made it so that confidence intervals could not be easily calculated for the direct and indirect effects. While methodologists have offered some solutions for calculating confidence intervals with multiply imputed data sets (Enders et al., 2013; Wu & Jia, 2013; Zhang & Wang, 2013), these solutions are not yet easily implemented by all researchers who wish to use these techniques. In this study, Wald tests were used to assess the statistical significance of model pathways. Wald statistics can be biased, and as such the results presented in this dissertation have the potential to be biased. While it is always preferred to use best practices when testing study hypotheses, it is equally important to note that SEM is guided by that assumption that no model will ever be completely

correct (Preacher & Hayes, 2008). Thus, it is not incorrect to report findings using Wald tests, but rather it would be incorrect to report those findings without disclosing the potential for biased tests of significance. There is no perfect SEM model, the models presented in this dissertation present provide one explanation for the relationships observed in the data, and future researchers should continue to study these relationships as best practices concerning the creation of confidence intervals in multiply imputed data become easier to implement for all researchers.

Another limitation of this study concerns the lack of precision with which perceptions of fairness in childcare labor was measured. There were more items concerning the care of young children than older children and yet not all participants had young children in the household. Thus, future researchers should work to solicit large enough samples of marital dyads with young children so as to truly assess the effect that childcare labor (because parents with young children are likely performing the most childcare labor) has on marital outcomes.

Finally, this study is limited by that fact that it looked at causal relationships via structural equation models that were estimated with cross-sectional data. The fact that structural equation models were used is important to list as a limitation because SEM cannot indicate if a model is “correct;” it can just give an estimate of how well the model fits the data. Thus, competing models are always possible (Preacher & Hayes, 2008). For example, had I tested the hypothesis that collaborative communication would have an indirect effect on marital quality through perceptions of fairness, the model fit for this model would be the same as the model fit for the model testing collaborative communication as the mediator variable. Additionally, the parameters estimated would have been the same. Thus, theory has to drive the prediction of causal mechanisms because SEM cannot answer which model is the “correct” model. It can only indicate how well the model fits the observed data.

The fact that cross-sectional data were used to estimate these pathways is also a limitation of this study. Causal relationships require time to unfold, and cross-sectional data are collected at the same point in time. Future researchers should attempt to study these same variables longitudinally to see if the effects observed in these data operate in the same ways when they are measured at different time points. To do this would require theorizing about how much time is likely to pass before perceiving fair (or unfair) divisions of labor would be expected to have an effect on couples' collaborative and non-aggressive communication. Likewise, the appropriate timing between collaborative communication and marital quality would also have to be theorized and tested.

### **Directions for Future Research**

While some directions for future research have been presented within, there are several other directions researchers interested in the divisions of labor in dual-earner couples could pursue. In terms of the application of this research to theories other than equity theory, future researchers should look to theories such as emotional bank account theory (Gottman & Silver, 1999) as well as theories of gender ideology.

Gottman and Silver's (1999) work outlines the concept of an emotional bank account. They indicate that when couples pay attention to creating positive interactions between one another in their day-to-day activities (e.g., thanking one's significant other for cooking dinner or doing the dishes, taking time to listen to one's significant other even when one is "too busy"), they are placing "happiness" and "goodwill" deposits into their emotional bank accounts. Then, when troubling times hit for these couples, they have a wealth of positive interactions built up that can help to buffer against the troubling experiences the couple is faced with.

Researchers looking to investigate the effects that fairness in the division of family labors have on marital outcomes could use an emotional bank account lens to better understand how perceptions of fairness effect marital quality. It is highly likely that perceptions of fairness ebb and flow throughout a relationship. There will be times when individuals in dyads feel that their divisions of labor are more unfair than others (e.g., a busy month at work, or a sick child or parent who needs extra care). That being said, couples who typically perceive much fairness in their divisions of family labors might fare better in these situations because they have accumulated “fairness” deposits in their relational bank accounts. These fairness deposits might protect them from experiencing decreases in collaboration and marital quality that this study found were associated with a decrease in perceived fairness. Thus, future researchers could test whether or not individuals make “fairness” deposits into their relational bank accounts.

This study also has implications for gender ideology theories. Many of the results of this study were explained by discussing societal expectations concerning how men and women ought to behave. Knowing that these gender norms are so pervasive, future researchers should work to develop more updated measures of gender ideology so that the role of current gender ideologies can be included in models that examine fairness in the divisions of labor and their effects on relational outcomes. Gender ideology represents the taken for granted assumptions that human beings have concerning the behaviors and attitudes that larger cultural discourses identify as being either masculine and/or feminine (Bartley, Blanton, & Gilliard, 2005). Our gender ideologies identify what we believe ought to be true concerning the behaviors and activities that identify what it means to be good men and good women. This study sought to include a measure of gender ideology as a control variable, but the scale chosen, the sex-role attitudes scale (SRAS; VanYperen & Buunk, 1991), was not internally consistent and could not be used in these

analyses. Likely, the scale did not hold up because it is outdated. Cultural norms concerning how men and women ought to act have changed greatly over the past 23 years, and more up-to-date measurements should be created so that the effects of gender ideologies can be assessed as this study consistently found that results could be best understood within a gender ideology frame.

Additionally, researchers might opt to measure and include marital conflict as an additional mediator in models that have perceptions of fairness predicting marital quality. This study assumed that the use of collaborative and non-aggressive communication resulted in more marital quality because those behaviors had been shown to be associated with less marital conflict. This assumption can and should be explicitly tested in future research.

Furthermore, care should be taken to measure communication behaviors in the context of the relationship. While it is not problematic that non-aggressive communication was measured outside of the marital context, the results may have looked different if participants were asked to comment on their use of non-aggressive communication with their spouses. While verbal aggressiveness is a trait, it is possible that individuals learn when, where, and how verbal aggression can be displayed. Thus, knowing if verbally aggressive behaviors (or non-verbally aggressive behaviors) are performed in a specific context is important for future inquiries. Additionally, if researchers opt to investigate conflict, as was suggested above, understanding the occurrence of marital conflicts associated with the divisions of wage, household, and childcare labor are likely also important avenues for researchers to pursue.

Finally, future researchers should also work to develop more nuanced ways of measuring fairness in marital relationships. In this study, fairness was assessed through participants' reports of perceived fairness on specific tasks. This resulted in the fairness in the division of wage labor construct being measured as a single item because the only task relevant to the performance of



wage labor is engaging in wage labor. Because wage labor fairness was a single item, I was not able to determine why participants saw their divisions as fair. Thus, researchers should work to create more nuanced measures of fairness that can account not only for the amount of fairness perceived, but also for potential reasons why fairness is perceived.

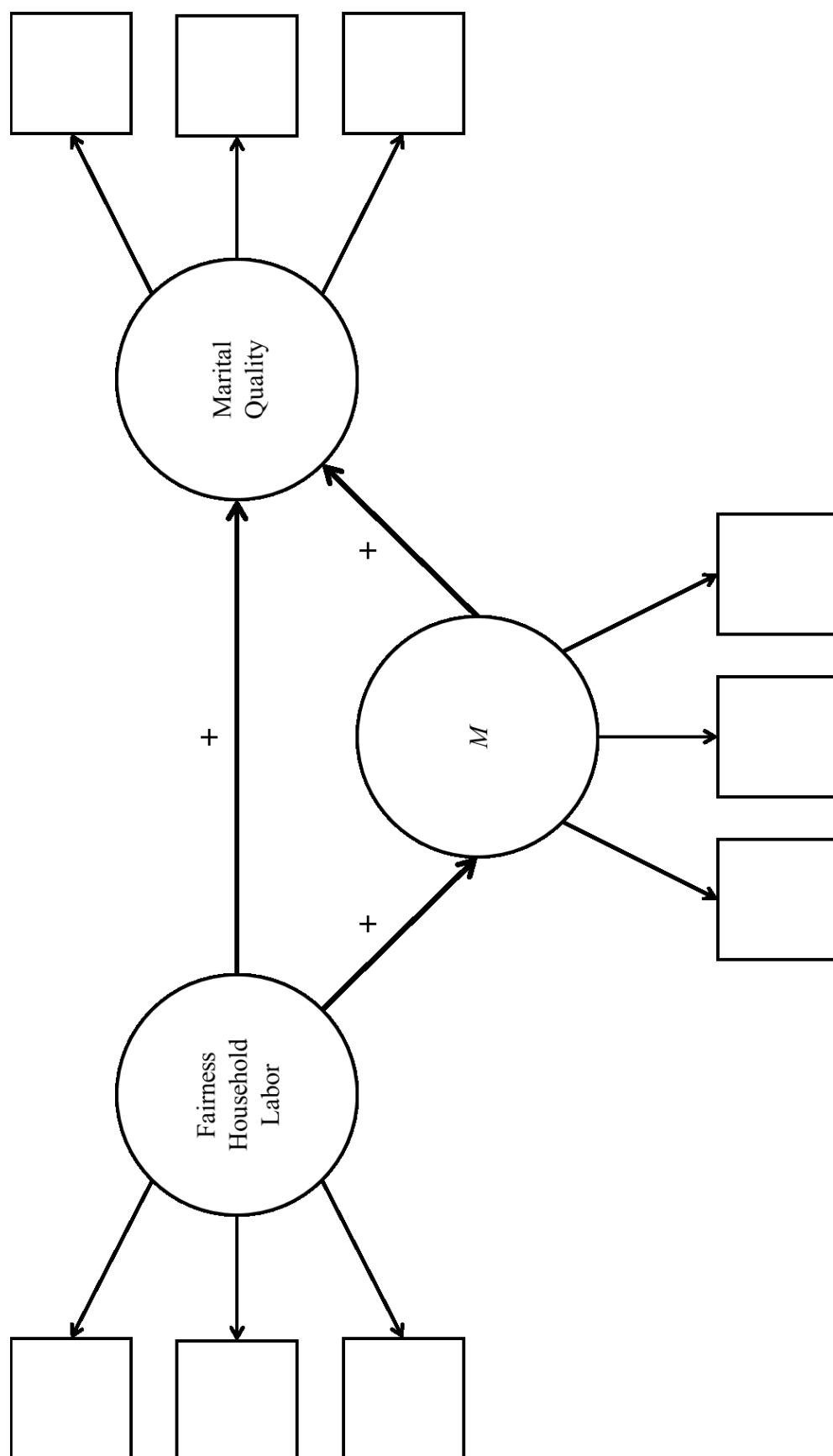


Figure 1. Hypotheses 1a, 1d, 2a & 2d. H1a examines husband variables and  $M$  = collaborative communication. H1d examines wife variables and  $M$  = collaborative communication. H2a examines husband variables and  $M$  = non-aggressive communication. H2d examines wife variables and  $M$  = non-aggressive communication.

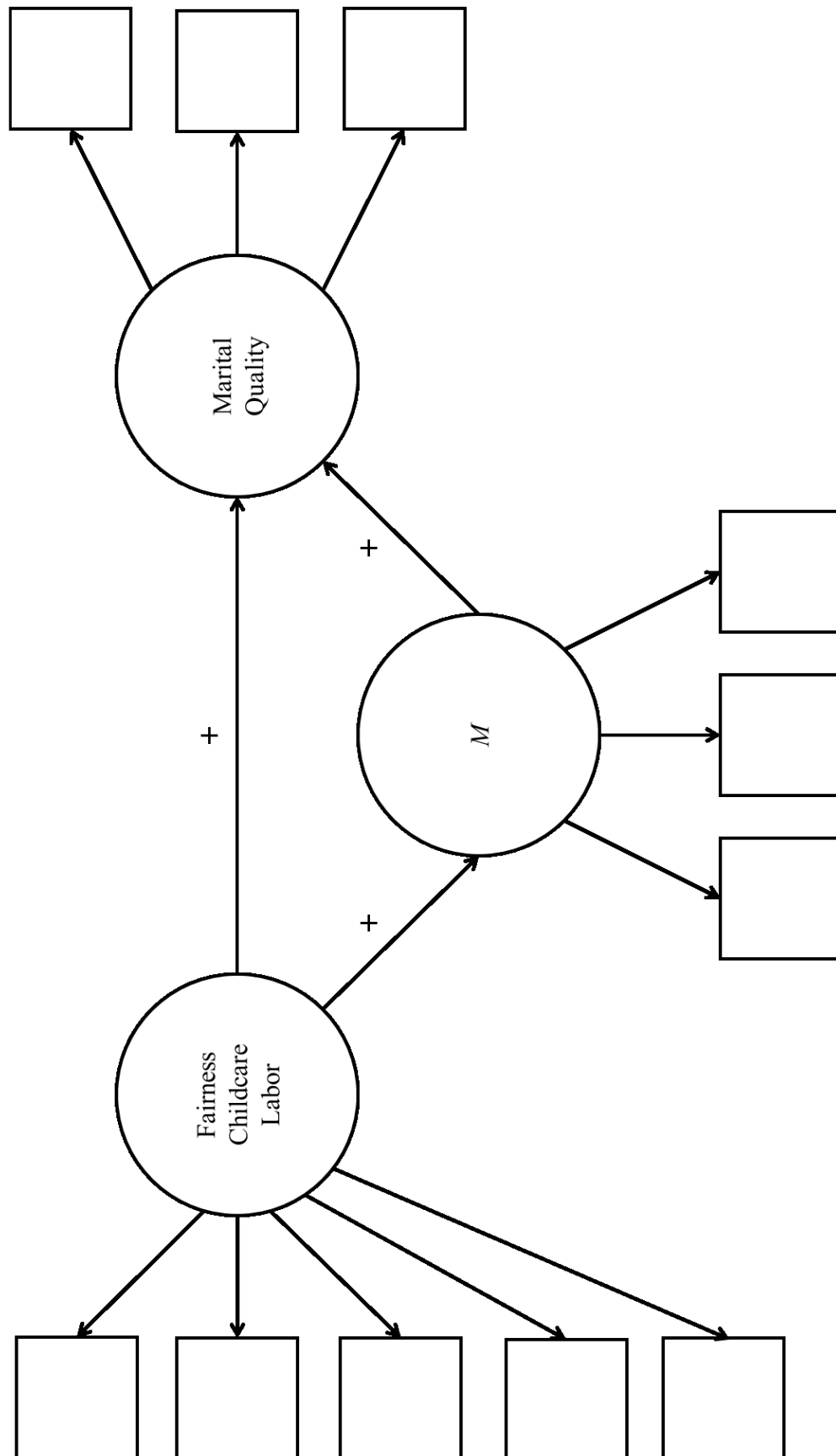


Figure 2. Hypotheses 1b, 1e, 2b & 2e. H1b examines husband variables and  $M$  = collaborative communication. H1e examines wife variables and  $M$  = collaborative communication. H2b examines husband variables and  $M$  = non-aggressive communication. H2e examines wife variables and  $M$  = non-aggressive communication.

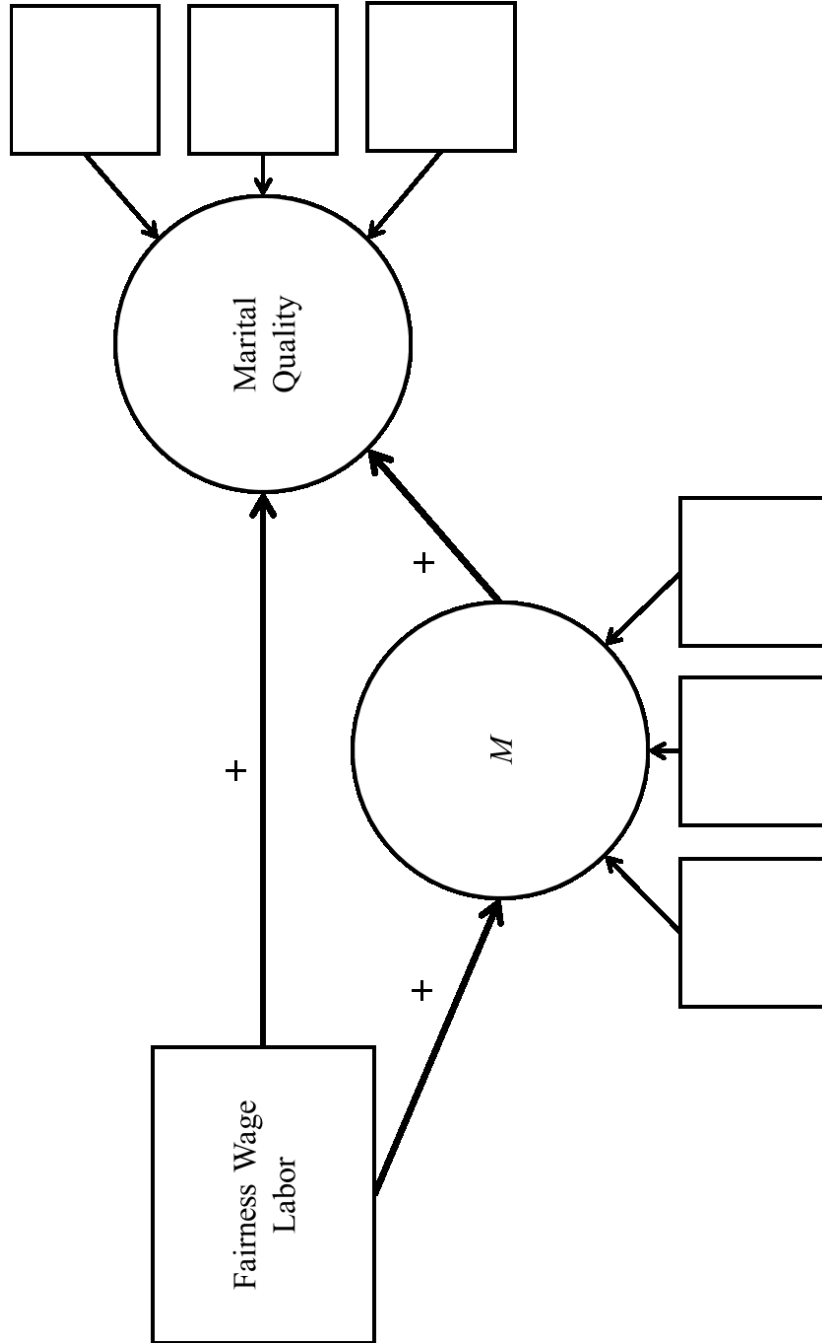


Figure 3. Hypotheses 1c, 1f, 2c & 2f. H1c examines husband variables and  $M$  = collaborative communication. H1f examines wife variables and  $M$  = collaborative communication. H2c examines husband variables and  $M$  = non-aggressive communication. H2f examines wife variables and  $M$  = non-aggressive communication.

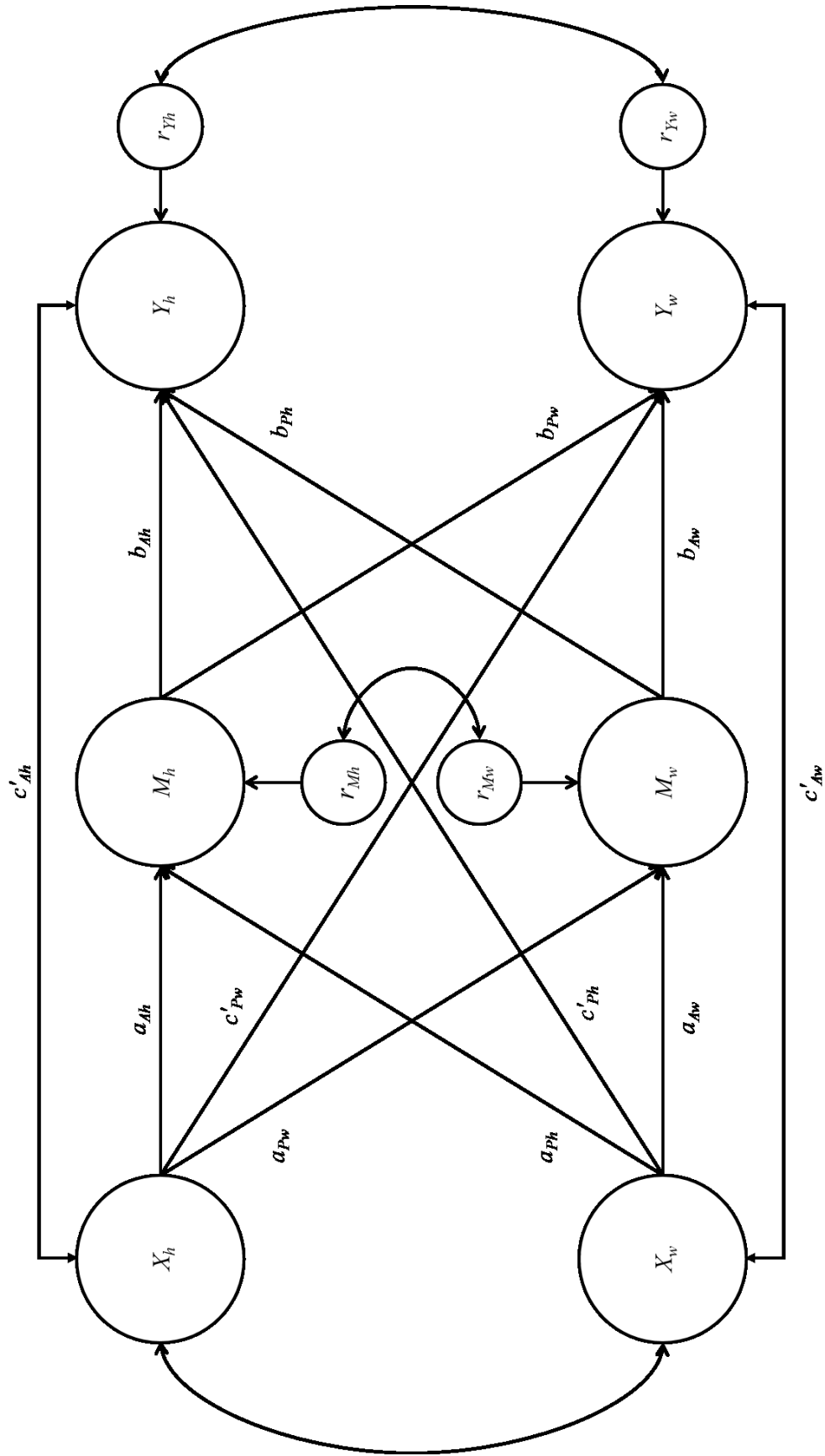


Figure 4. Conceptual APIMeM. Labels  $a$ ,  $b$ , and  $c'$  represent the traditional pathways in mediation analyses.  $X$  = predictor (independent) variable,  $M$  = mediator variable,  $Y$  = outcome (dependent) variable,  $A$  = actor effect,  $P$  = partner effect,  $h$  = husband,  $w$  = wife.

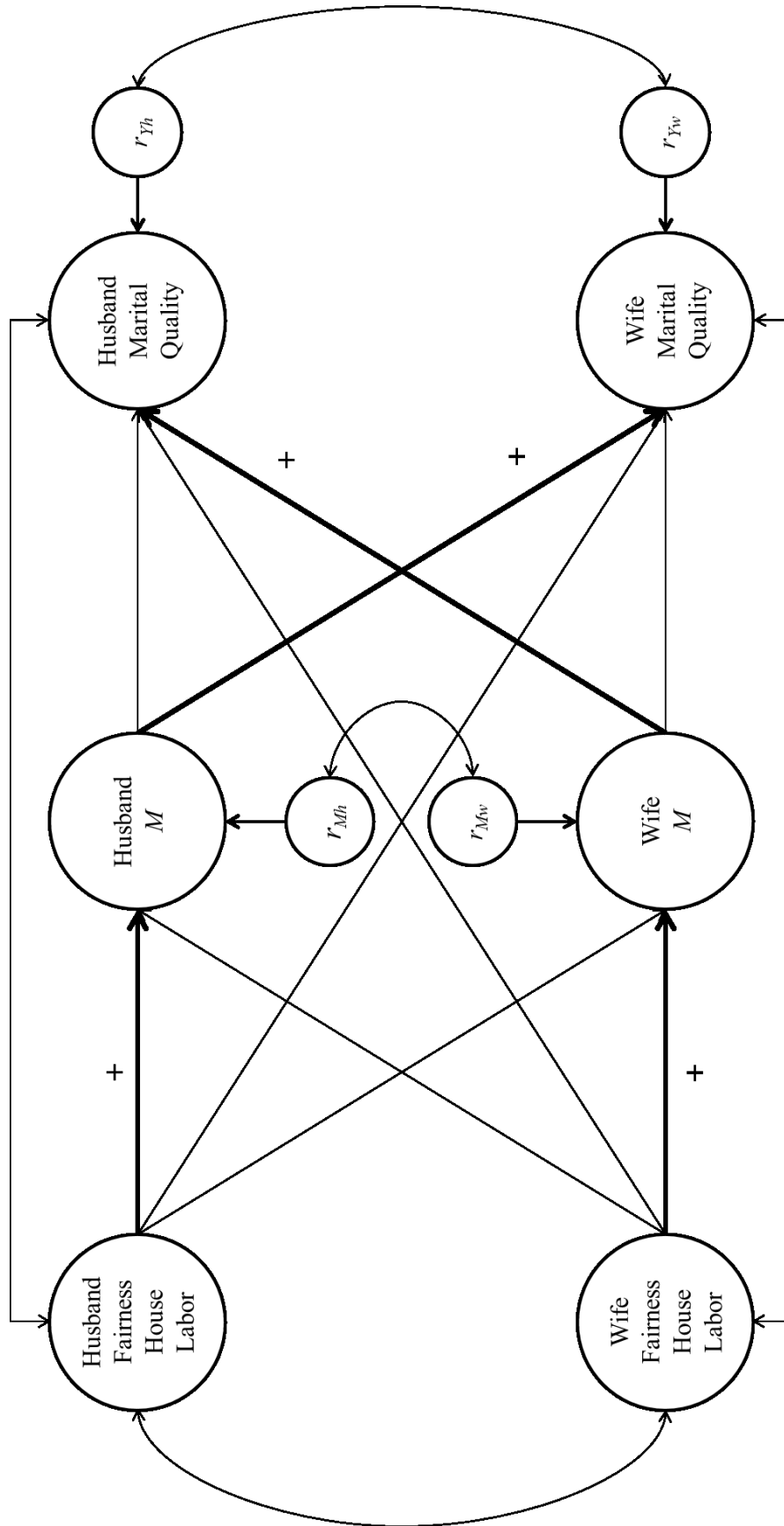


Figure 5. Hypotheses 3a, 3b, 4a & 4b. In hypotheses 3a and 3b,  $M$  = collaborative communication. In hypotheses 4a and 4b,  $M$  = non-aggressive communication.

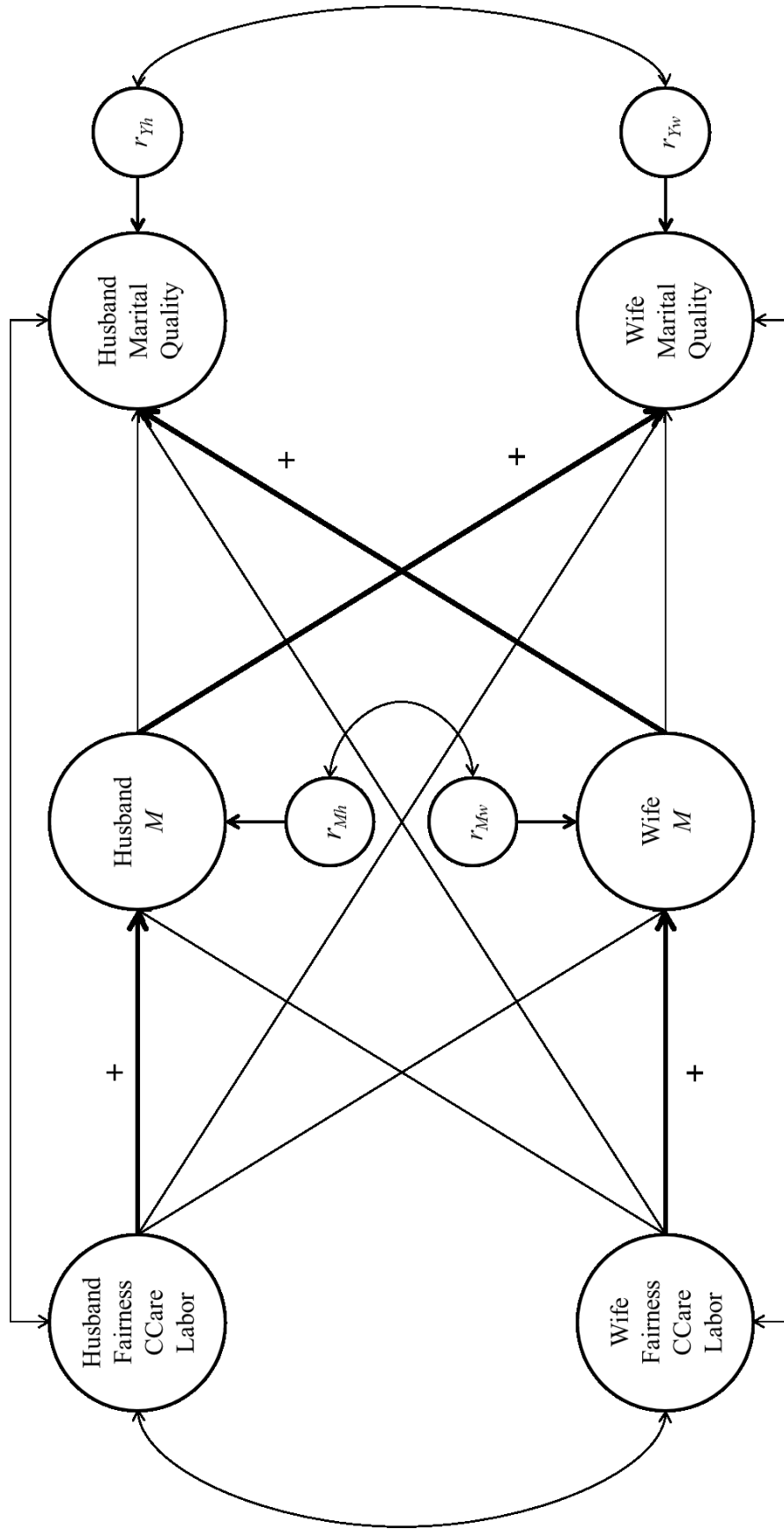


Figure 6. Hypotheses 3c, 3d, 4c & 4d. CCare= childcare. In hypotheses 3c and 3d,  $M$  = collaborative communication. In hypotheses 4c and 4d,  $M$  = non-aggressive communication.

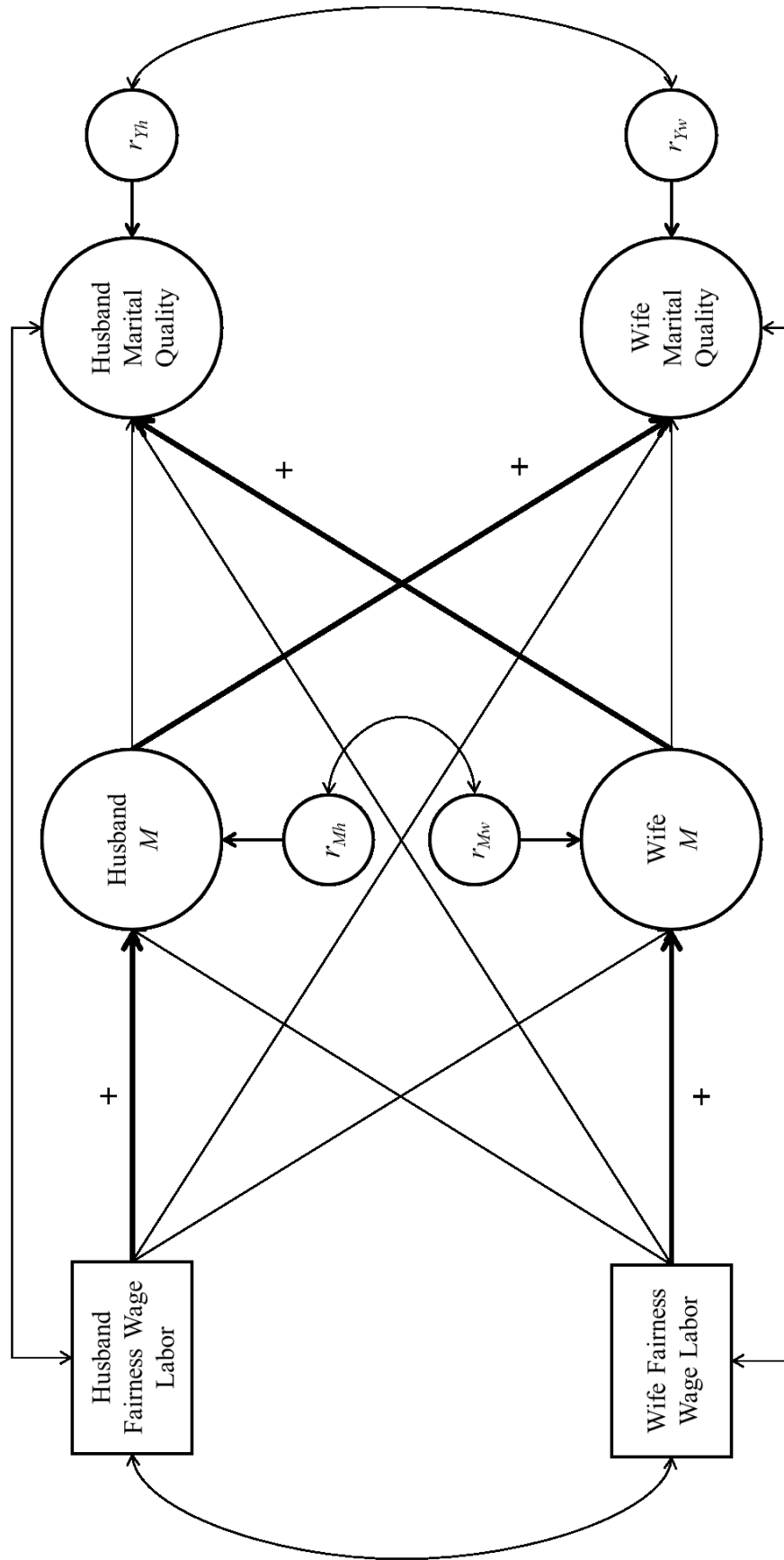
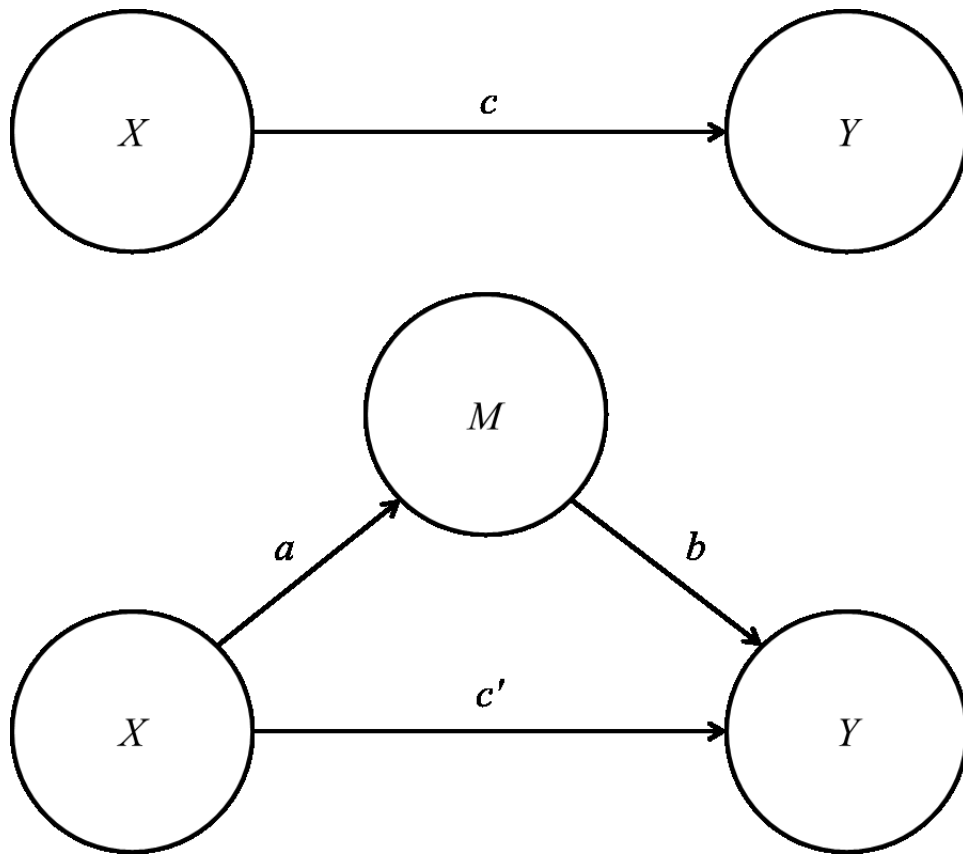


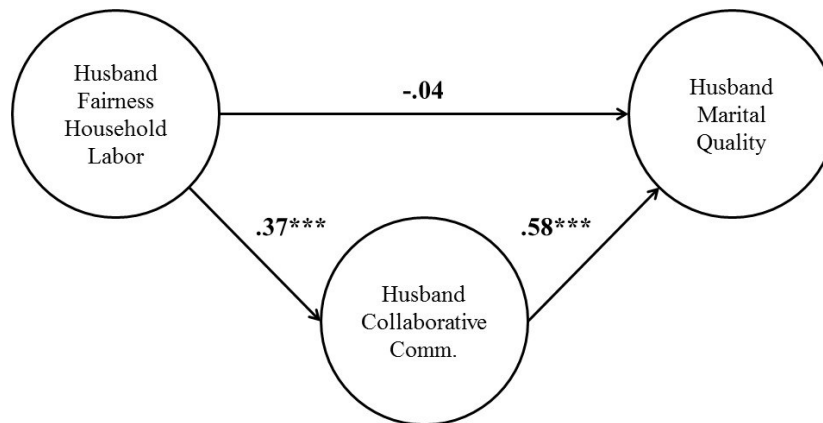
Figure 7. Hypotheses 3e, 3f, 4e & 4f. In hypotheses 3e and 3f,  $M$  = collaborative communication. In hypotheses 4e and 4f,  $M$  = non-aggressive communication.



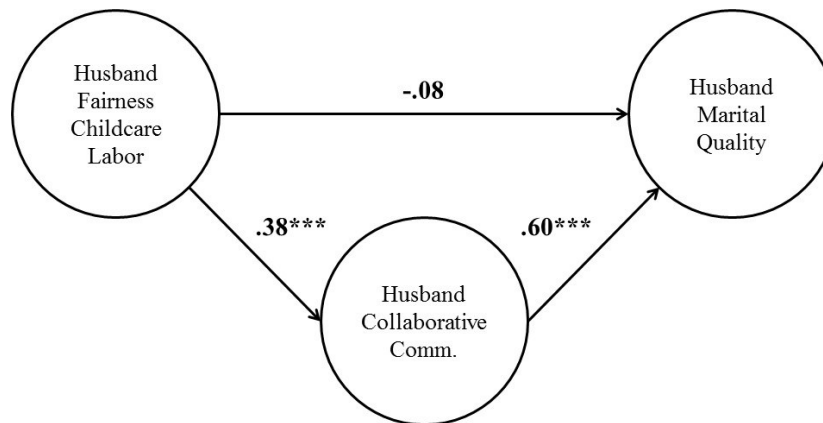


*Figure 8.* Conceptual simple mediation model.  $X$  represents the initial variable,  $M$  represents the mediator variable, and  $Y$  represents the outcome variable.

a. H1a: Mediation model with husband perception of household labor fairness as predictor



b. H1b: Mediation model with husband perception of childcare labor fairness as predictor



c. H1c: Mediation model with husband perception of wage labor fairness as predictor

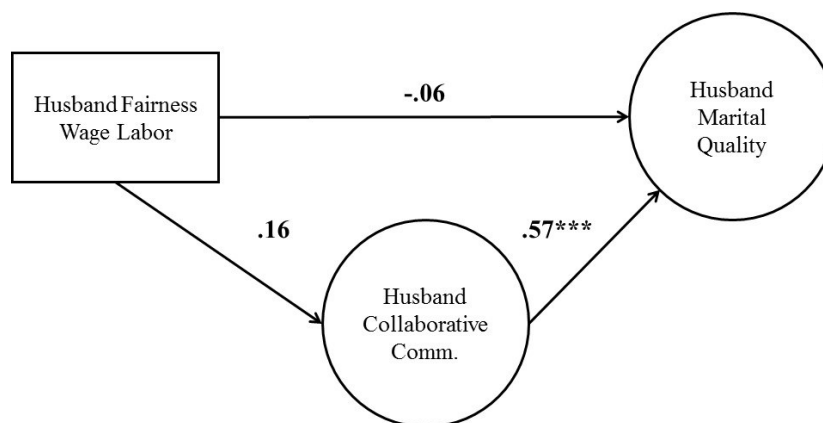
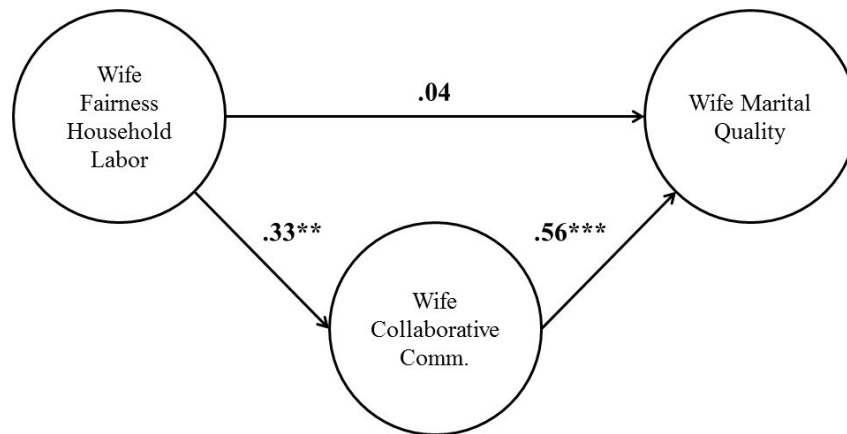
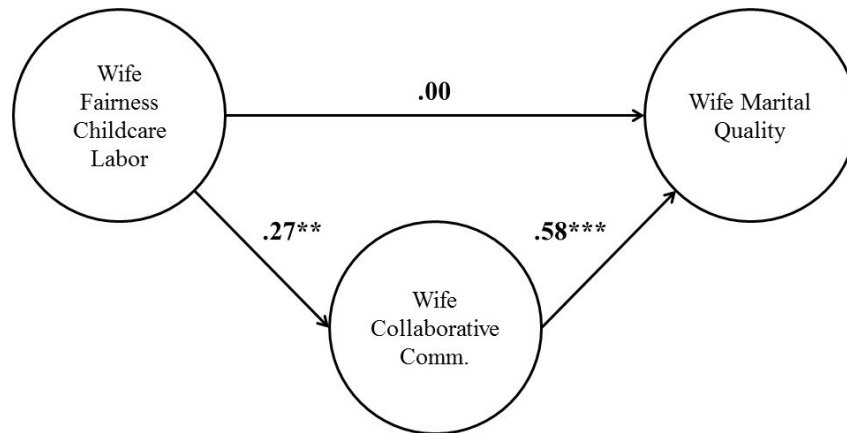


Figure 9. Models with standardized parameters testing the indirect effect of husbands' perceptions of fairness in household labor (Figure 9a.), childcare labor (Figure 9b.), and wage labor (Figure 9c.) on his perception of marital quality through his use of collaborative communication. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

a. H1d: Mediation model with wife perception of household labor fairness as predictor



b. H1e: Mediation model with wife perception of childcare labor fairness as predictor



c. H1f: Mediation model with wife perception of wage labor fairness as predictor

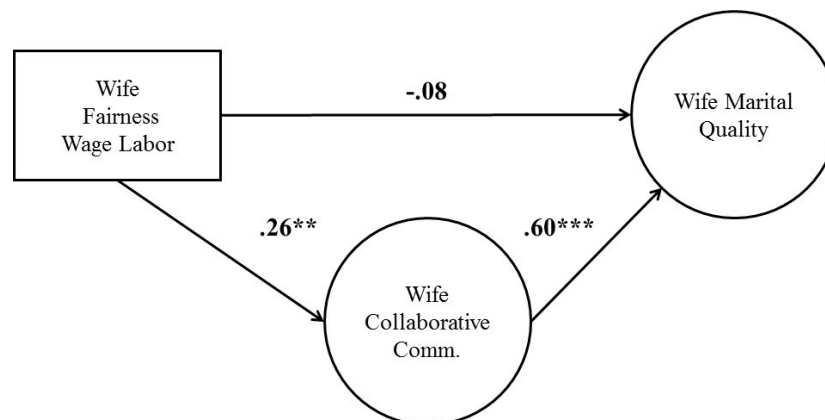
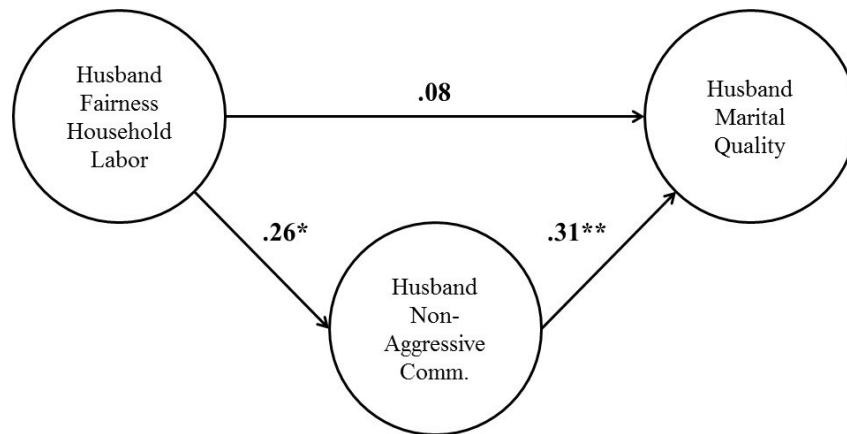
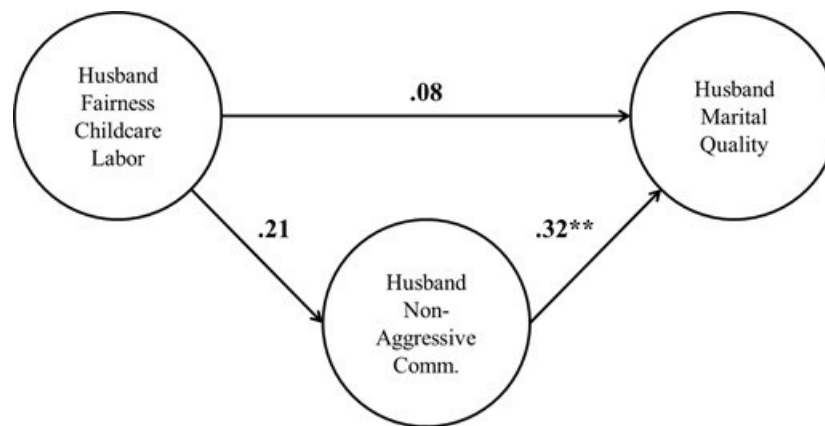


Figure 10. Models with standardized parameters testing the indirect effect of wives' perceptions of fairness in household labor (Figure 10a.), childcare labor (Figure 10b.), and wage labor (Figure 10c.) on her perception of marital quality through her use of collaborative communication. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

a. H2a: Mediation model with husband perception of household labor fairness as predictor



b. H2b: Mediation model with husband perception of childcare labor fairness as predictor



c. H2c: Mediation model with husband perception of wage labor fairness as predictor

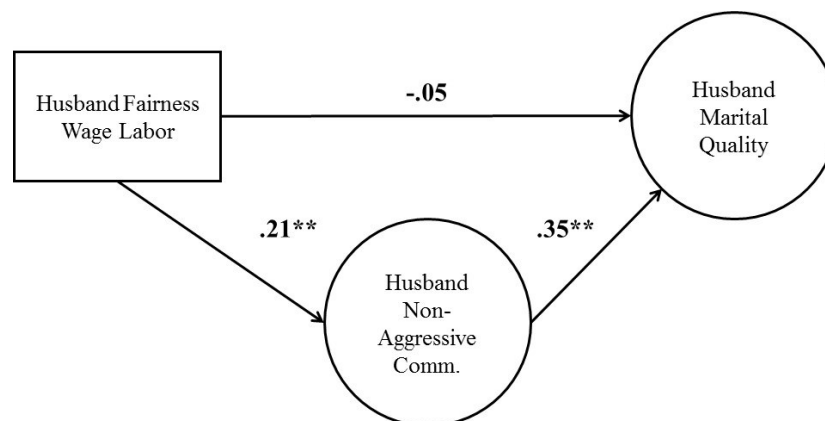
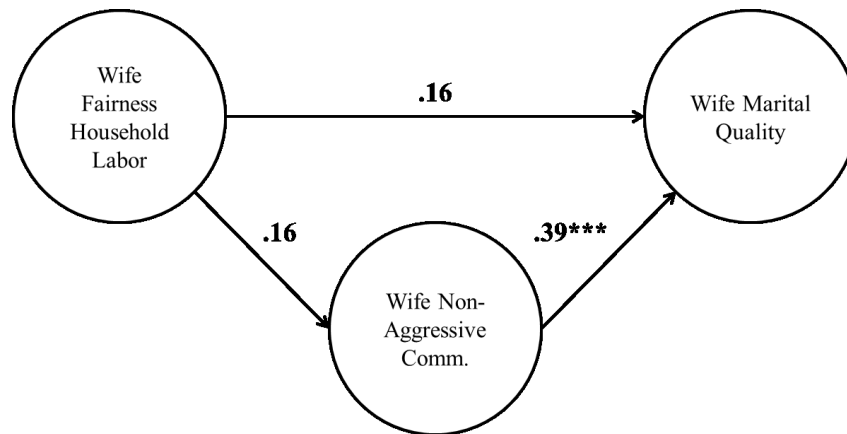
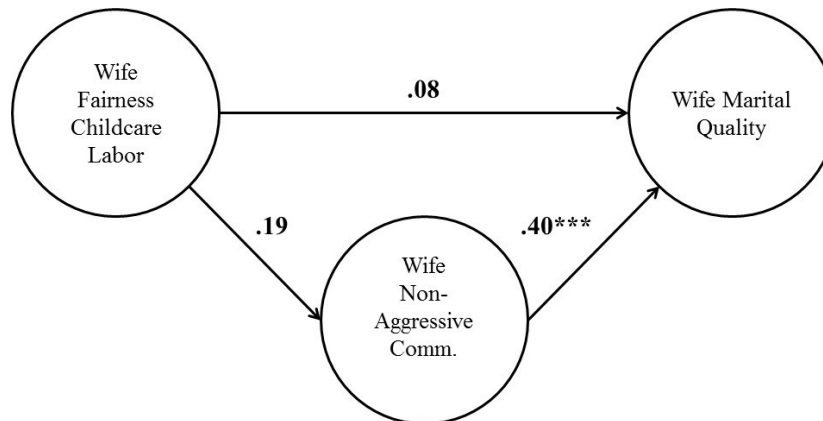


Figure 11. Models with standardized parameters testing the indirect effect of husbands' perceptions of fairness in household labor (Figure 11a.), childcare labor (Figure 11b.), and wage labor (Figure 11c.) on his perception of marital quality through his use of non-aggressive communication. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

a. H2d: Mediation model with husband perception of household labor fairness as predictor



b. H2e Mediation model with husband perception of childcare labor fairness as predictor



c. H2f: Mediation model with husband perception of wage labor fairness as predictor

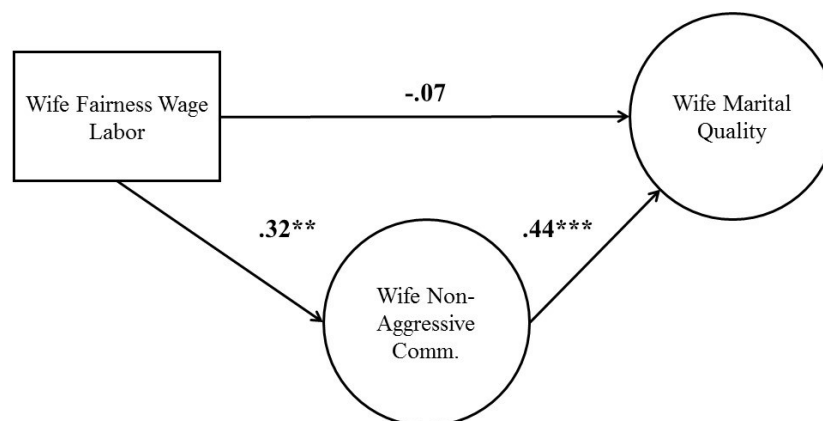


Figure 12. Models with standardized parameters testing the indirect effect of wives' perceptions of fairness in household labor (Figure 12a.), childcare labor (Figure 12b.), and wage labor (Figure 12c.) on her perception of marital quality through her use of non-aggressive communication. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

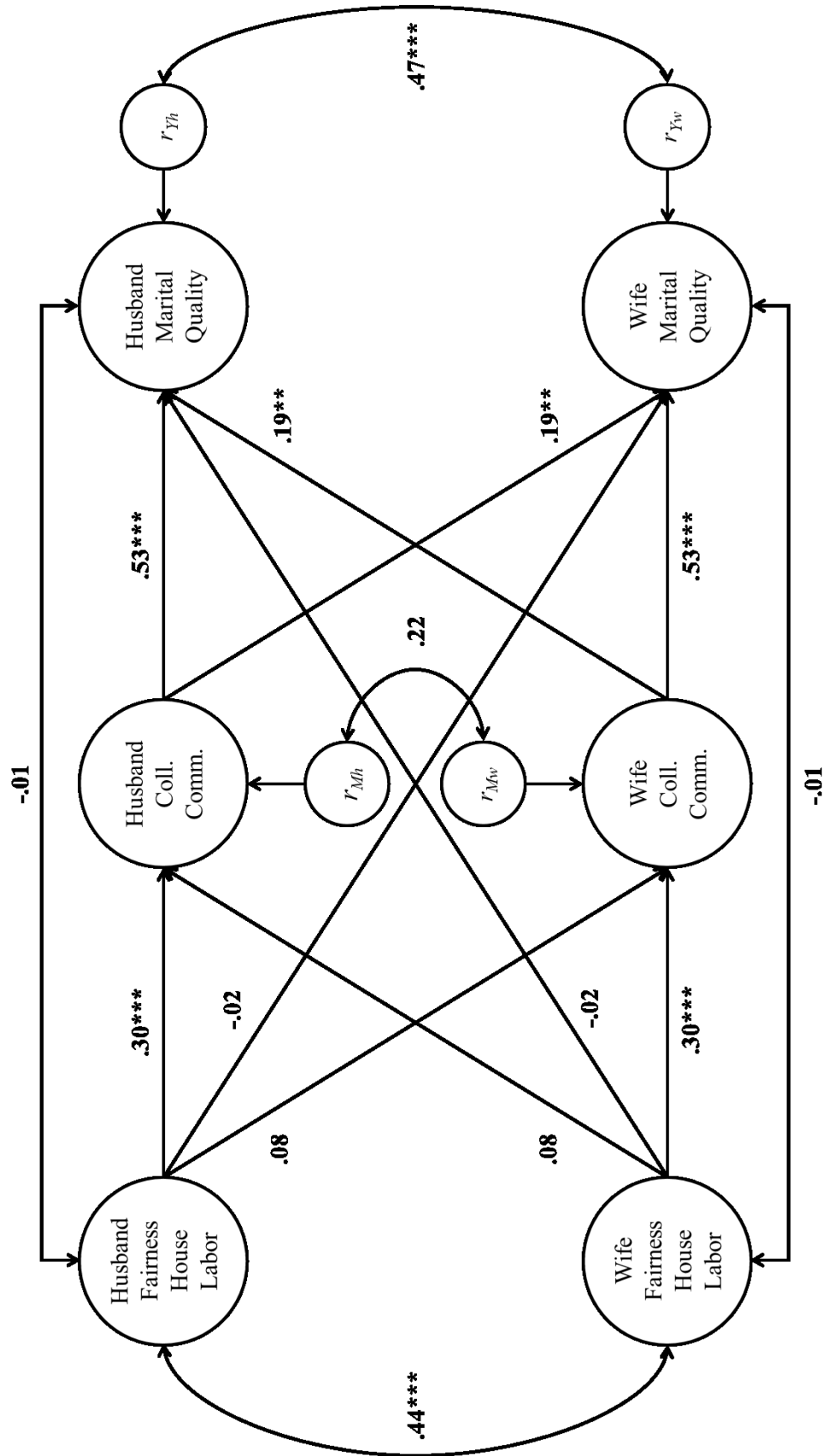


Figure 13. APIMeM with standardized parameters testing the indirect effects of husbands' and wives' perceptions of fairness in the division of household labor on marital quality through collaborative communication (H3a and H3b). House Labor = household labor, Coll. Comm. = collaborative communication. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

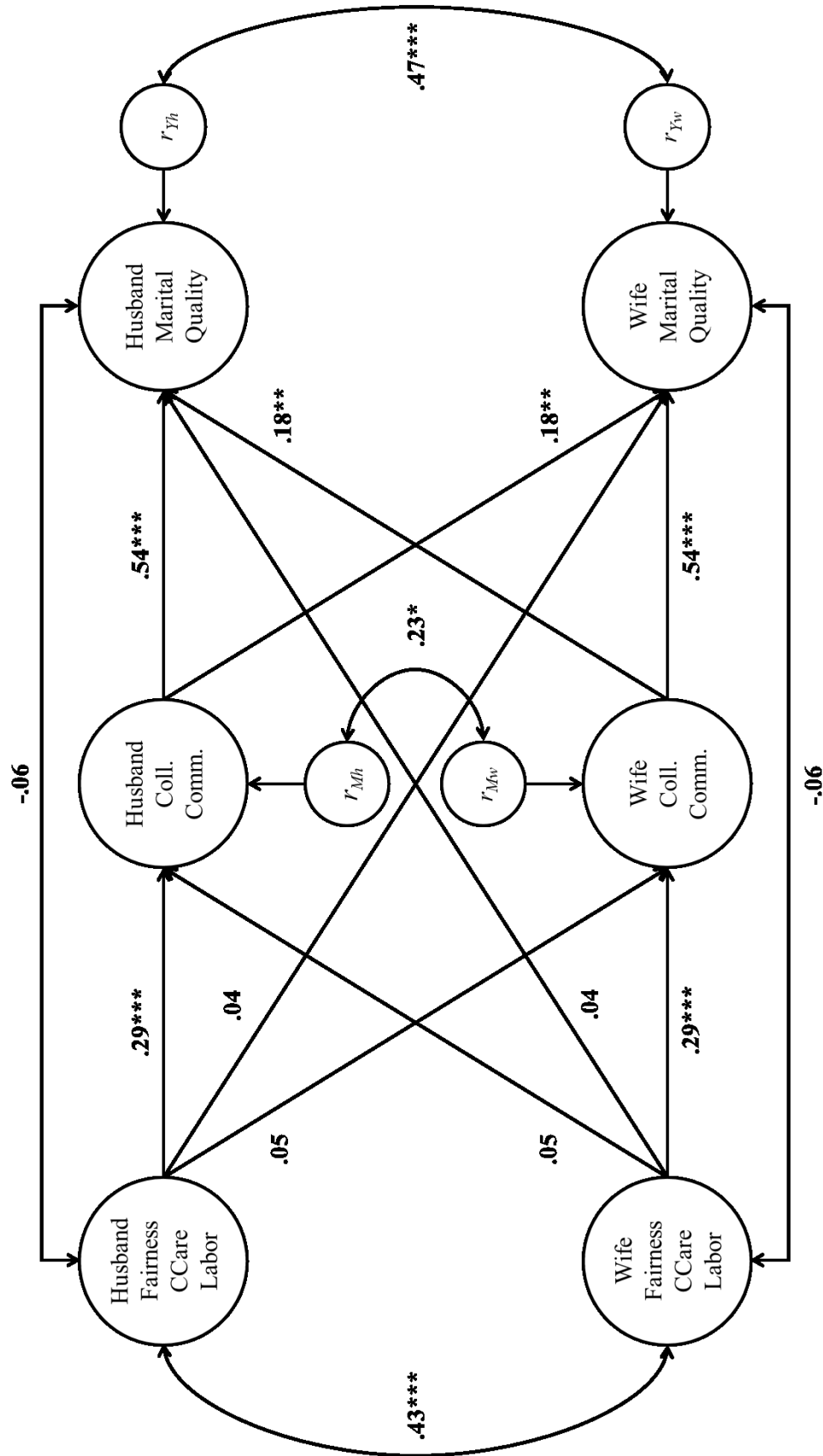


Figure 14. APIMeM with standardized parameters testing the indirect effects of husbands' and wives' perceptions of fairness in the division of childcare labor on marital quality through collaborative communication (H3c and H3d). CCare Labor = childcare labor, Coll. Comm. = collaborative communication. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

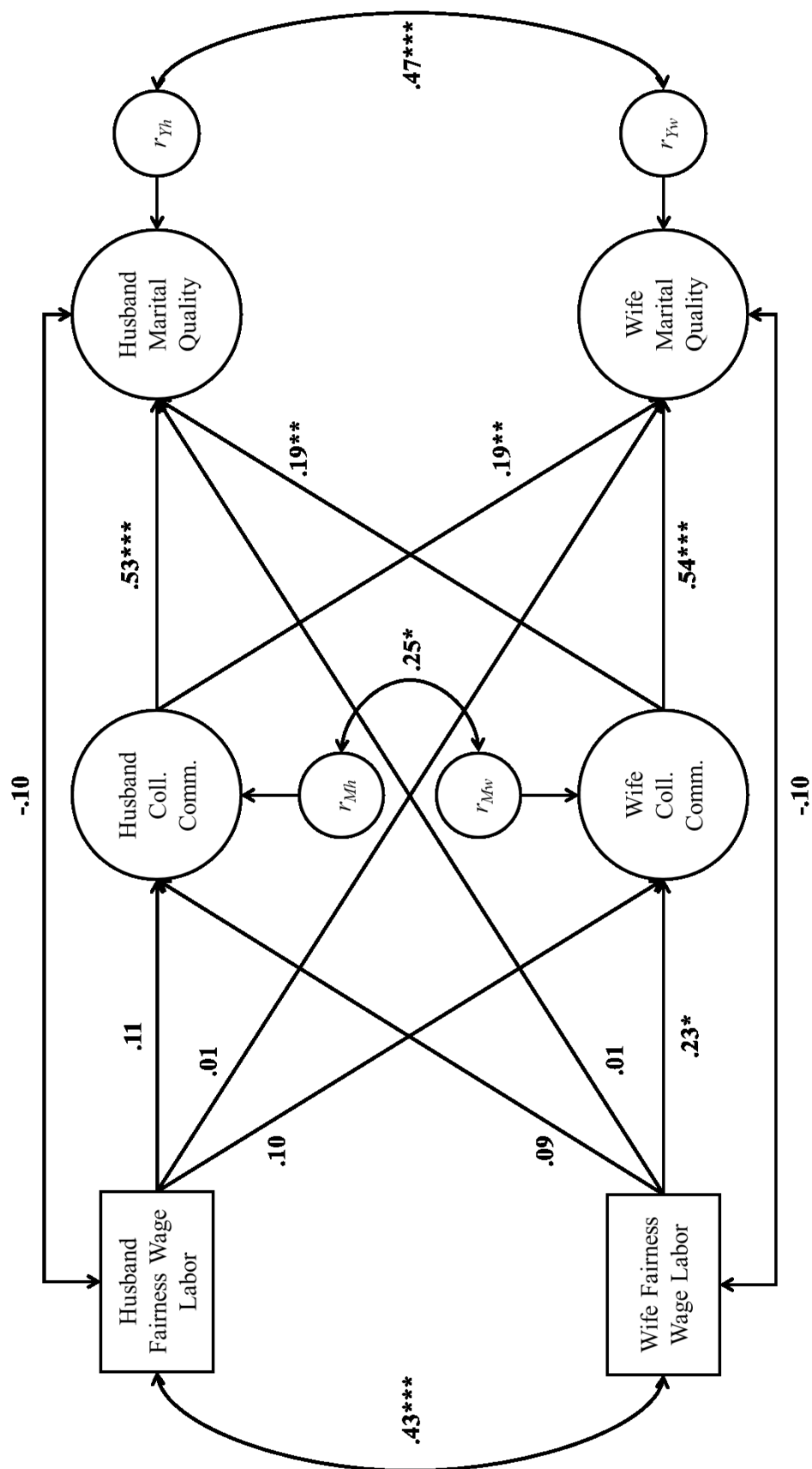


Figure 15. APIMeM with standardized parameters testing the indirect effects of husbands' and wives' perceptions of fairness in the division of wage labor on marital quality through collaborative communication (H3e and H3f). Coll. Comm. = collaborative communication. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .



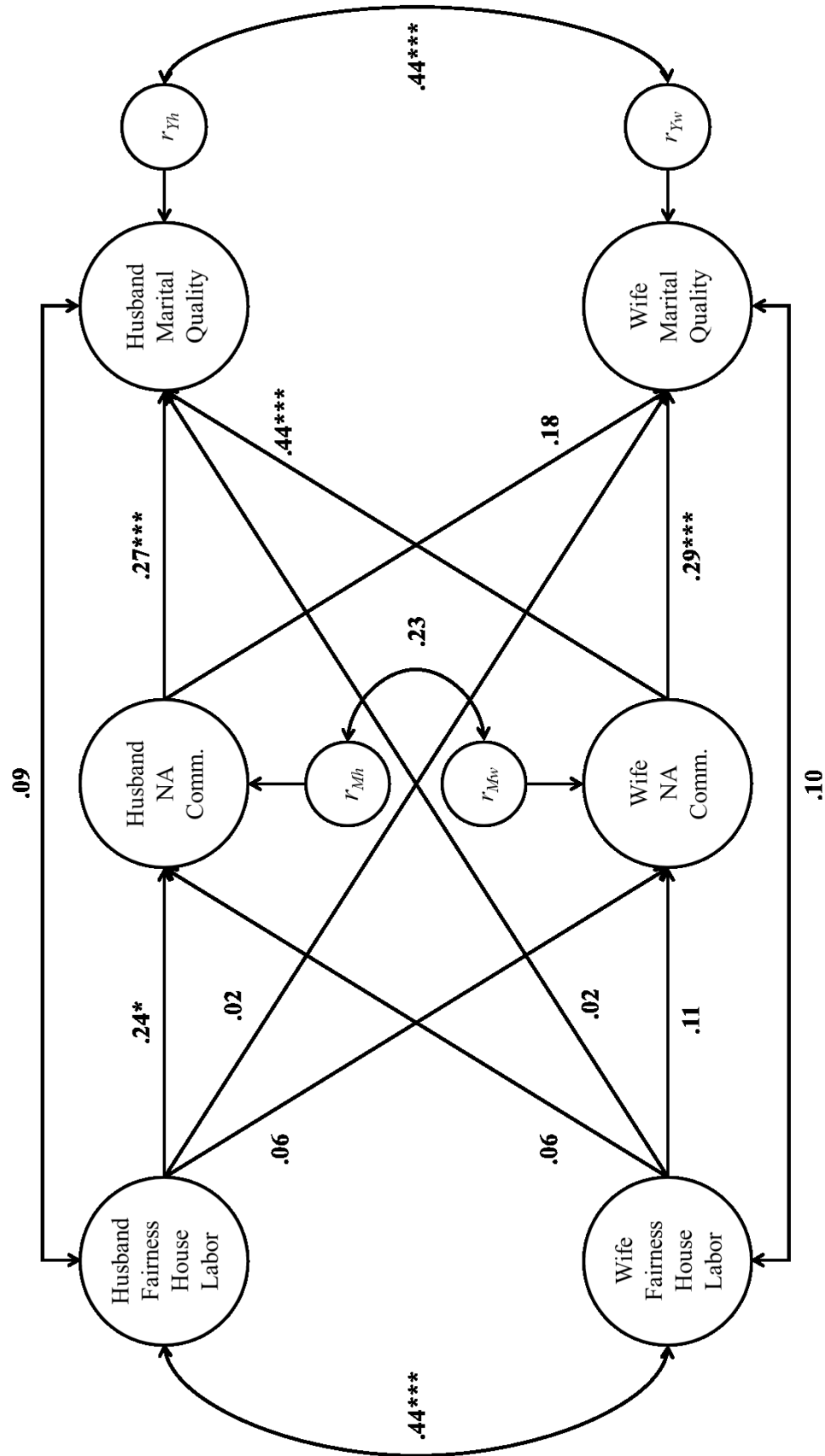


Figure 16. APIMeM with standardized parameters testing the indirect effects of husbands' and wives' perceptions of fairness in the division of household labor on marital quality through non-aggressive communication (H4a and H4b). House Labor = household labor, NA Comm. = non-aggressive communication.  $*p < .05$ ,  $**p < .01$ ,  $***p < .001$ .

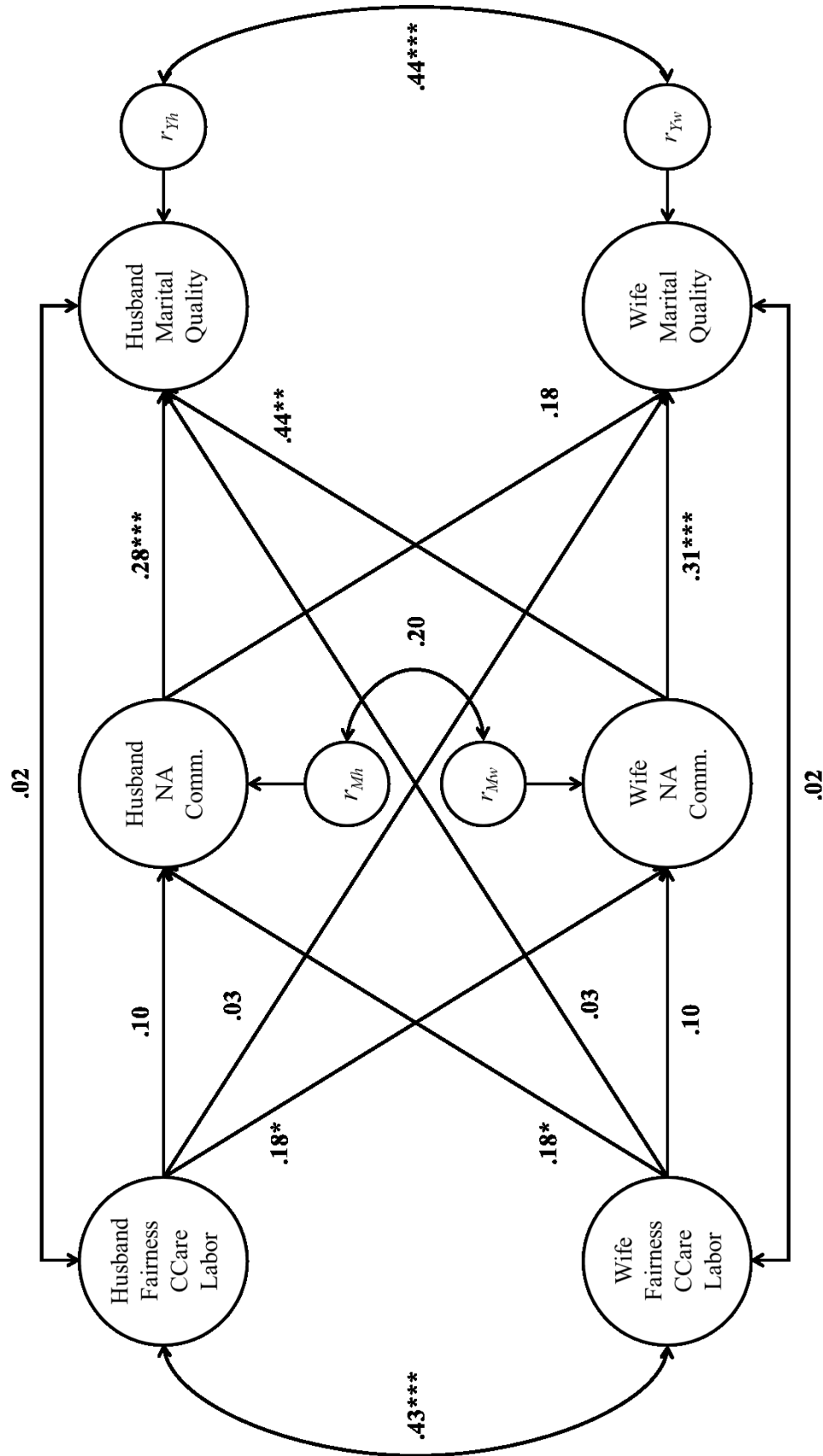


Figure 17. APIMeM with standardized parameters testing the indirect effects of husbands' and wives' perceptions of fairness in the division of childcare labor on marital quality through non-aggressive communication (H4c and H4d). CCare Labor = childcare labor, NA Comm. = non-aggressive communication. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

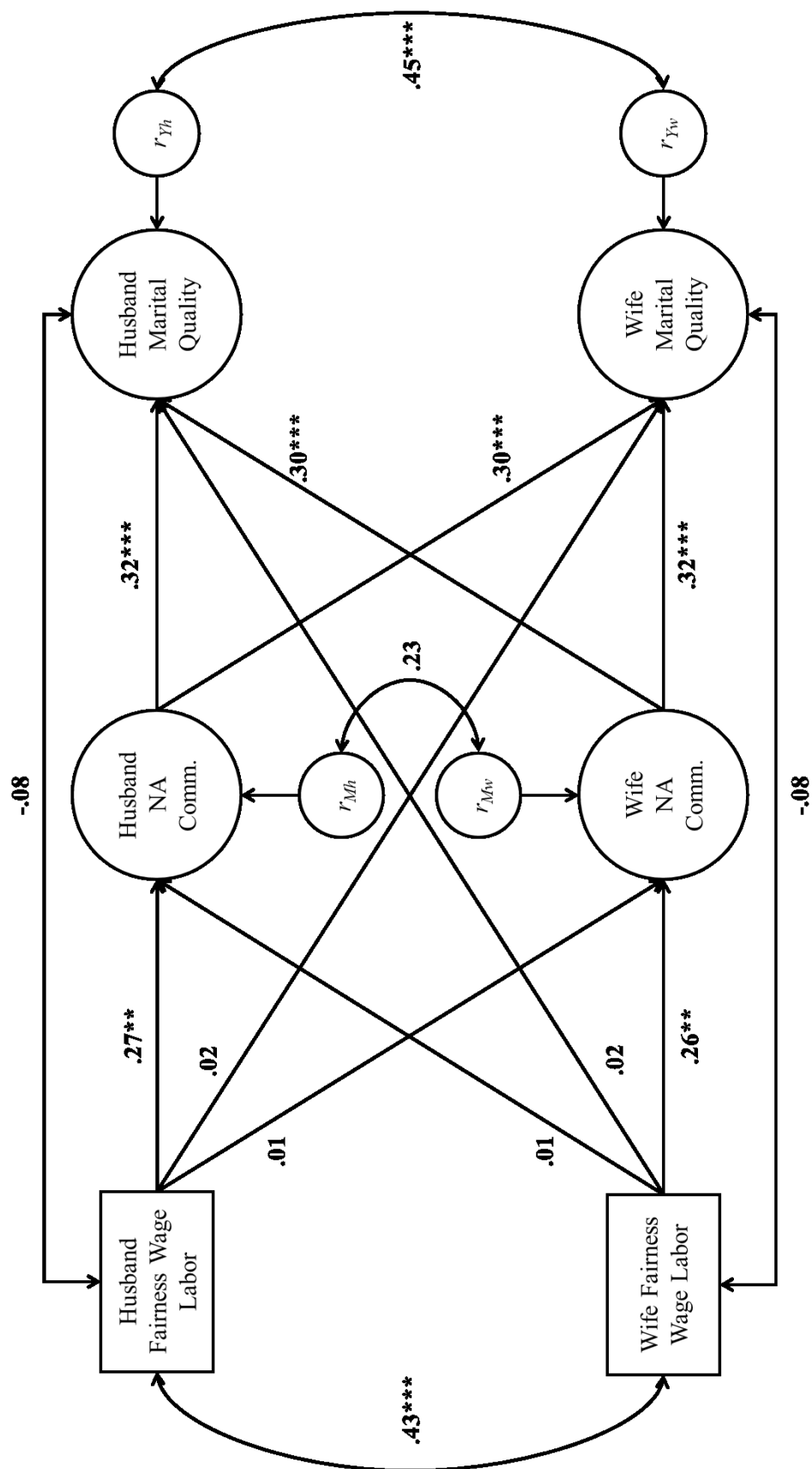


Figure 18. APIMeM with standardized parameters testing the indirect effects of husbands' and wives' perceptions of fairness in the division of wage labor on marital quality through non-aggressive communication (H4e and H4f). NA Comm. = non-aggressive communication.  $*p < .05$ ,  $**p < .01$ ,  $***p < .001$ .

Table 1

*The 3-Form Planned Missing Data Design*

Form	Common	Set A	Set B	Set C
1	X	X	X	
2	X	X		X
3	X		X	X

*Note.* The proportion of variables included in each set does not need to be balanced. The common data set should always contain the best predictors of each scale utilized, because all participants will answer the common questions. There is no requirement that data sets A, B, and C have an equal number of variables.

Table 2

*Assigning Items in the Non-Aggressive Scale to X, A, B, and C Question Sets in a 3-Form Planned Missing Data Design Study*

Item	Loading	Question Sets			
		X	A	B	C
1 I am extremely careful to avoid attacking individuals' intelligence when I attack their ideas.	.59	X			
2 When I try to influence people, I make a great effort not to offend them	.58				X
3 When I attack persons' ideas, I try not to damage their self-concepts.	.58			X	
4 I try very hard to avoid having other people feel bad about themselves when I try to influence them.	.52		X		
5 When an argument shifts to personal attacks, I try very hard to change the subject	.50		X		
6 When others do things I regard as stupid, I try to be extremely gentle with them.	.50			X	
7 I refuse to participate in arguments when they involve personal attacks.	.42				X
8 I try to make people feel good about themselves even when their ideas are stupid.	.42		X		
9 When people criticize my shortcomings, I take it in good humor and do not try to get back at them.	.28			X	
10 When I dislike individuals greatly, I try not to show it in what I say or how I say it.	.20				X

*Note.* Items are arranged in order of decreasing factor loading. To balance items in the A, B, and C sets, only one item (i.e., the best predictor) was placed in the X (common) set. Items were then balanced between the A, B, and C sets based on the factor loadings reported in past research. The item with highest loading that was not included in the common set went to set C for this scale because the researcher alternated, by scale, which form got the item with the highest loading not included in set X. This was done to ensure that one set did not contain all the “better” predictors. Finally, the last three items were not assigned to C, B, and then A, because the eighth item was a much better predictor than the ninth and tenth items. Because the best predictor, not in the X set, went in set C, the decision was made to also give set C the item with the lowest loading.

Table 3

*Study Variables' Theoretical Range, Means, and Standard Deviations*

Variable	Theoretical Range	M (SD)		Wald Test of Mean Difference
		Husbands	Wives	
Fairness in the Division of				
Household Labor	1 – 7	4.29 (1.23)	3.78 (1.28)	20.88***
Childcare Labor	1 – 7	4.97 (1.21)	4.48 (1.45)	19.02***
Wage Labor	1 – 7	5.14 (1.71)	5.03 (1.66)	.29
Collaborative Communication	1 – 7	5.62 (.81)	5.60 (1.03)	.02
Non-Aggressive Communication	1 – 5	3.52 (.68)	3.88 (.58)	19.19***
Marital Quality	1 – 7	6.25 (.79)	6.13 (1.00)	.50

*Note.* M = mean, SD = standard deviation, \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 4

*Within Subject Correlations and Cronbach's Alpha ( $\alpha$ ) Values for Husbands*

		1	2	3	4	5	6
1	Household Labor Fairness	$\alpha = .85$					
2	Childcare Labor Fairness	.51***	$\alpha = .82$				
3	Wage Labor Fairness	.28**	.33***				
4	Collaborative Communication	.35***	.32***	.14	$\alpha = .80$		
5	Non-Aggressive Communication	.21*	.17	.20*	.51***	$\alpha = .79$	
6	Marital Quality	.16	.14	.04	.51***	.30***	$\alpha = .87$

*Note.* Cronbach's alpha values appear on the diagonal. Wage labor fairness does not have a reported  $\alpha$  value because it is a single item measure. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 5

*Within Subject Correlations and Cronbach's Alpha ( $\alpha$ ) Values for Wives*

		1	2	3	4	5	6
1	Household Labor Fairness	$\alpha = .87$					
2	Childcare Labor Fairness	.57***	$\alpha = .85$				
3	Wage Labor Fairness	.35***	.52***				
4	Collaborative Communication	.32***	.29**	.25**	$\alpha = .84$		
5	Non-Aggressive Communication	.12	.17	.27**	.25**	$\alpha = .70$	
6	Marital Quality	.20*	.17	.09	.55***	.34***	$\alpha = .91$

*Note.* Cronbach's alpha values appear on the diagonal. Wage labor fairness does not have a reported  $\alpha$  value because it is a single item measure. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .



Table 6

*Within Dyad Correlations*

		Wife					
		1	2	3	4	5	6
Husband	1 Household Labor Fairness	.41***	.21*	.14	.17	.07	.15
	2 Childcare Labor Fairness	.27**	.39***	.25**	.19*	.12	.24**
	3 Wage Labor Fairness	.31***	.29**	.43***	.21*	.08	.03
	4 Collaborative Communication	.23*	.16	.11	.28**	.27**	.30***
	5 Non-Aggressive Communication	.17	.23*	.13	.13	.21*	.21*
	6 Marital Quality	.11	.04	.18*	.25**	.41***	.50***

*Note.* \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 7

*Unstandardized Effect Estimates for Husband and Wife Mediation Models with Fairness in the Division of Labor as Initial Variable, Collaborative Communication as Mediator Variable, and Marital Satisfaction as Outcome Variable*

Effect	Fairness in the Division of Household Labor as Initial Variable			Fairness in the Division of Childcare Labor as Initial Variable			Fairness in the Division of Wage Labor as Initial Variable		
	Estimate	SE	p	Estimate	SE	p	Estimate	SE	p
<b>Husband</b>									
$X \rightarrow \text{Coll. Comm. (M)}$	.39**	.12	.001	.42**	.13	.001	.09	.06	.12
$\text{Coll. Comm. (M)} \rightarrow \text{Marital Quality (Y)}$	.66***	.16	.000	.68***	.16	.000	.69***	.16	.000
$X \rightarrow \text{Marital Quality (Y)}$	-.05	.13	.70	-.10	.14	.48	-.04	.06	.53
<b>Wife</b>									
$X \rightarrow \text{Coll. Comm. (M)}$	.35**	.12	.003	.28*	.11	.01	.16**	.06	.009
$\text{Coll. Comm. (M)} \rightarrow \text{Marital Quality (Y)}$	.66***	.14	.000	.68***	.14	.000	.71***	.14	.000
$X \rightarrow \text{Marital Quality (Y)}$	.05	.12	.67	.00	.11	.97	-.06	.06	.37

*Note.* Coll. Comm. = collaborative communication; SE = standard error; X = initial variable, M = mediator variable, Y = outcome variable. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 8

*Unstandardized Indirect and Total Effect Estimates, Wald statistic values, and p-values for Collaborative Communication Mediator Models*

	Model	Estimate	SE	Wald Statistic	p
H1a	H Fair HL → H Coll. Comm. → H Mar. Qual.				
	IE	.26*	.10	2.59	.01
	TE	.21	.13	1.62	.11
H1b	H Fair CL → H Coll. Comm. → H Mar. Qual.				
	IE	.28**	.11	2.63	.009
	TE	.18	.14	1.36	.18
H1c	H Fair WL → H Coll. Comm. → H Mar. Qual.				
	IE	.06	.04	1.47	.14
	TE	.02	.07	.34	.73
H1d	W Fair HL → W Coll. Comm. → W Mar. Qual.				
	IE	.23*	.09	2.58	.01
	TE	.28*	.13	2.18	.03
H1e	W Fair CL → W Coll. Comm. → W Mar. Qual.				
	IE	.19*	.08	2.29	.02
	TE	.20	.13	1.57	.12
H1f	W Fair WL → W Coll. Comm. → W Mar. Qual.				
	IE	.12*	.05	2.35	.02
	TE	.06	.07	.79	.43

*Note.* H = husband, W = wife, Fair HL = perception of fairness in division of household labor, Fair CL = perception of fairness in division of childcare labor, Fair WL = perception of fairness in division of wage labor, Coll. Comm. = collaborative communication, Mar. Qual. = marital quality, IE = indirect effect, TE = total effect; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 9

*Unstandardized Effect Estimates for Husband and Wife Mediation Models with Fairness in the Division of Labor as Initial Variable, Non-Aggressive Communication as Mediator Variable, and Marital Satisfaction as Outcome Variable*

Effect	Fairness in the Division of Household Labor as Initial Variable			Fairness in the Division of Childcare Labor as Initial Variable			Fairness in the Division of Wage Labor as Initial Variable		
	Estimate	SE	p	Estimate	SE	p	Estimate	SE	p
<b>Husband</b>									
$X \rightarrow \text{NA Comm. (M)}$	.27*	.11	.02	.22	.12	.07	.13*	.06	.04
$\text{NA Comm. (M)} \rightarrow \text{Marital Quality (Y)}$	.32*	.13	.01	.34*	.13	.01	.36*	.13	.01
$X \rightarrow \text{Marital Quality (Y)}$	.09	.11	.44	.08	.12	.49	-.03	.06	.63
<b>Wife</b>									
$X \rightarrow \text{NA Comm. (M)}$	.16	.12	.19	.19	.12	.12	.21**	.07	.004
$\text{NA Comm. (M)} \rightarrow \text{Marital Quality (Y)}$	.43**	.14	.001	.44**	.14	.001	.46**	.14	.001
$X \rightarrow \text{Marital Quality (Y)}$	.18	.11	.11	.09	.11	.41	-.05	.07	.49

*Note.* NA Comm. = non-aggressive communication; SE = standard error; X = initial variable, M = mediator variable, Y = outcome variable. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 10

*Unstandardized Indirect and Total Effect Estimates, Wald statistic values, and p-values for Non-Aggressive Communication Mediator Models*

	Model	Estimate	SE	Wald Statistic	p
H2a	H Fairness HL → H NA Comm. → H Mar. Qual.				
	IE	.09	.05	1.78	.08
	TE	.17	.11	1.56	.12
H2b	H Fairness CL → H NA Comm. → H Mar. Qual.				
	IE	.07	.05	1.54	.13
	TE	.15	.12	1.30	.20
H2c	H Fairness WL → H NA Comm. → H Mar. Qual.				
	IE	.05	.03	1.66	.10
	TE	.02	.06	.26	.79
H2d	W Fairness HL → W NA Comm. → W Mar. Qual.				
	IE	.07	.06	1.22	.22
	TE	.25*	.12	2.14	.03
H2e	W Fairness CL → W NA Comm. → W Mar. Qual.				
	IE	.08	.06	1.42	.16
	TE	.18	.11	1.54	.13
H2f	W Fairness WL → W NA Comm. → W Mar. Qual.				
	IE	.10*	.04	2.20	.03
	TE	.05	.06	.76	.45

*Note.* H = husband, W = wife, Fair HL = perception of fairness in division of household labor, Fair CL = perception of fairness in division of childcare labor, Fair WL = perception of fairness in division of wage labor, NA Comm. = non-aggressive communication, Mar. Qual. = marital quality, IE = indirect effect, TE = total effect; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 11

*Unstandardized Effect Estimates for APIMeMs with Fairness in the Division of Labor as Initial Variable, Collaborative Communication as Mediator Variable, and Marital Satisfaction as Outcome Variable*

Effect	Fairness in the Division of Household Labor as Initial Variable			Fairness in the Division of Childcare Labor as Initial Variable			Fairness in the Division of Wage Labor as Initial Variable		
	Estimate	SE	p	Estimate	SE	p	Estimate	SE	p
$X \rightarrow \text{Coll. Comm. } (M)$									
Husband AE ( $X_h \rightarrow M_h = a_{Ah}$ )	.33***	.09	.000	.31***	.09	.000	.07	.06	.27
Wife AE ( $X_w \rightarrow M_w = a_{Aw}$ )	.33***	.09	.000	.31***	.09	.000	.14*	.06	.02
Wife to Husband PE ( $X_w \rightarrow M_h = a_{Ph}$ )	.09	.08	.29	.06	.09	.51	.06	.04	.19
Husband to Wife PE ( $X_h \rightarrow M_w = a_{Pw}$ )	.09	.08	.29	.06	.09	.51	.06	.04	.19
$\text{Coll. Comm. } (M) \rightarrow \text{Marital Quality } (Y)$									
Husband AE ( $M_h \rightarrow Y_h = b_{Ah}$ )	.62***	.10	.000	.64***	.10	.000	.65***	.10	.000
Wife AE ( $M_w \rightarrow Y_w = b_{Aw}$ )	.62***	.10	.000	.64***	.10	.000	.65***	.10	.000
Wife to Husband PE ( $M_w \rightarrow Y_h = b_{Ph}$ )	.22**	.08	.009	.21*	.09	.01	.23**	.08	.005
Husband to Wife PE ( $M_h \rightarrow Y_w = b_{Pw}$ )	.22**	.08	.009	.21*	.09	.01	.23**	.08	.005
$X \rightarrow \text{Marital Quality } (Y)$									
Husband AE ( $X_h \rightarrow Y_h = c'_{Ah}$ )	-.01	.09	.89	-.08	.09	.38	-.07	.05	.11
Wife AE ( $X_w \rightarrow Y_w = c'_{Aw}$ )	-.01	.09	.89	-.08	.09	.38	-.07	.05	.11
Wife to Husband PE ( $X_w \rightarrow Y_h = c'_{Ph}$ )	-.02	.09	.78	.05	.09	.61	.01	.05	.82
Husband to Wife PE ( $X_h \rightarrow Y_w = c'_{Pw}$ )	-.02	.09	.78	.05	.09	.61	.01	.05	.82

*Note.* Coll. Comm. = collaborative communication; AE = actor effect, PE = partner effect,  $X$  = initial variable,  $M$  = mediator variable,  $Y$  = outcome variable;  $h$  = husband,  $w$  = wife;  $SE$  = standard error. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 12

*Unstandardized Simple Indirect, Direct, Total Indirect, and Total Effect Estimates; Wald statistic values; and p-values for the APIMeM Testing the Effect of Fairness in the Division of Household Labor on Marital Quality through Collaborative Communication*

Model	Estimate	SE	Wald Statistic	p
Simple Indirect Effects				
Husband actor-actor IE ( $X_h \rightarrow M_h \rightarrow Y_h = a_{Ah}b_{Ah}$ )	.20**	.06	3.18	.001
Wife actor-actor IE ( $X_w \rightarrow M_w \rightarrow Y_w = a_{Aw}b_{Aw}$ )	.20**	.06	3.18	.001
Husband partner-partner IE ( $X_h \rightarrow M_w \rightarrow Y_h = a_{Pw}b_{Ph}$ )	.02	.02	.97	.33
Wife partner-partner IE ( $X_w \rightarrow M_h \rightarrow Y_w = a_{Ph}b_{Pw}$ )	.02	.02	.97	.33
Husband actor-partner IE ( $X_w \rightarrow M_w \rightarrow Y_h = a_{Aw}b_{Ph}$ )	.07*	.03	2.14	.03
Wife actor-partner IE ( $X_h \rightarrow M_h \rightarrow Y_w = a_{Ah}b_{Pw}$ )	.07*	.03	2.14	.03
Husband partner-actor IE ( $X_w \rightarrow M_h \rightarrow Y_h = a_{Ph}b_{Ah}$ )	.05	.05	1.04	.30
Wife partner-actor ( $X_h \rightarrow M_w \rightarrow Y_w = a_{Pw}b_{Aw}$ )	.05	.05	1.04	.30
Direct Effects $c'$				
Husband actor ( $X_h \rightarrow Y_h = c'_{Ah}$ )	-.01	.09	-.14	.89
Wife actor ( $X_w \rightarrow Y_w = c'_{Aw}$ )	-.01	.09	-.14	.89
Husband partner ( $X_h \rightarrow Y_w = c'_{Ph}$ )	-.02	.09	-.28	.78
Wife partner ( $X_w \rightarrow Y_h = c'_{Pw}$ )	-.02	.09	-.28	.78
Total Indirect Effects				
Husband actor TIE ( $a_{Ah}b_{Ah} + a_{Pw}b_{Ph}$ )	.22**	.06	3.46	.001
Wife actor TIE ( $a_{Aw}b_{Aw} + a_{Ph}b_{Pw}$ )	.22**	.06	3.46	.001
Husband partner TIE ( $a_{Aw}b_{Ph} + a_{Ph}b_{Ah}$ )	.13*	.06	2.10	.04
Wife partner TIE ( $a_{Ah}b_{Pw} + a_{Pw}b_{Aw}$ )	.13*	.06	2.10	.04
Total Effects				
Husband actor TE ( $a_{Ah}b_{Ah} + a_{Pw}b_{Ph} + c'_{Ah}$ )	.21*	.09	2.27	.02
Wife actor TE ( $a_{Aw}b_{Aw} + a_{Ph}b_{Pw} + c'_{Aw}$ )	.21*	.09	2.27	.02
Husband partner TE ( $a_{Aw}b_{Ph} + a_{Ph}b_{Ah} + c'_{Ph}$ )	.10	.09	1.13	.26
Wife partner TE ( $a_{Ah}b_{Pw} + a_{Pw}b_{Aw} + c'_{Pw}$ )	.10	.09	1.13	.26

*Note.* A = actor, P = partner, h = husband, w = wife,  $X$  (initial variable) = perception of fairness in division of household labor,  $M$  (mediator variable) = collaborative communication,  $Y$  (outcome variable) = marital quality, IE = indirect effect, TIE = total indirect effect, TE = total effect; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 13

*Unstandardized Simple Indirect, Direct, Total Indirect, and Total Effect Estimates; Wald statistic values; and p-values for the APIMeM Testing the Effect of Fairness in the Division of Childcare Labor on Marital Quality through Collaborative Communication*

Model	Estimate	SE	Wald Statistic	p
Simple Indirect Effects				
Husband actor-actor IE ( $X_h \rightarrow M_h \rightarrow Y_h = a_{Ah}b_{Ah}$ )	.20**	.06	3.13	.002
Wife actor-actor IE ( $X_w \rightarrow M_w \rightarrow Y_w = a_{Aw}b_{Aw}$ )	.20**	.06	3.13	.002
Husband partner-partner IE ( $X_h \rightarrow M_w \rightarrow Y_h = a_{Pw}b_{Ph}$ )	.01	.02	.63	.53
Wife partner-partner IE ( $X_w \rightarrow M_h \rightarrow Y_w = a_{Ph}b_{Pw}$ )	.01	.02	.63	.53
Husband actor-partner IE ( $X_w \rightarrow M_w \rightarrow Y_h = a_{Aw}b_{Ph}$ )	.07*	.03	2.06	.04
Wife actor-partner IE ( $X_h \rightarrow M_h \rightarrow Y_w = a_{Ah}b_{Pw}$ )	.07*	.03	2.06	.04
Husband partner-actor IE ( $X_w \rightarrow M_h \rightarrow Y_h = a_{Ph}b_{Ah}$ )	.04	.06	.66	.51
Wife partner-actor ( $X_h \rightarrow M_w \rightarrow Y_w = a_{Pw}b_{Aw}$ )	.04	.06	.66	.51
Direct Effects $c'$				
Husband actor ( $X_h \rightarrow Y_h = c'_{Ah}$ )	-.08	.09	-.88	.38
Wife actor ( $X_w \rightarrow Y_w = c'_{Aw}$ )	-.08	.09	-.88	.38
Husband partner ( $X_h \rightarrow Y_w = c'_{Ph}$ )	.05	.09	.51	.61
Wife partner ( $X_w \rightarrow Y_h = c'_{Pw}$ )	.05	.09	.51	.61
Total Indirect Effects				
Husband actor TIE ( $a_{Ah}b_{Ah} + a_{Pw}b_{Ph}$ )	.21**	.06	3.36	.001
Wife actor TIE ( $a_{Aw}b_{Aw} + a_{Ph}b_{Pw}$ )	.21**	.06	3.36	.001
Husband partner TIE ( $a_{Aw}b_{Ph} + a_{Ph}b_{Ah}$ )	.10	.06	1.67	.10
Wife partner TIE ( $a_{Ah}b_{Pw} + a_{Pw}b_{Aw}$ )	.10	.06	1.67	.10
Total Effects				
Husband actor TE ( $a_{Ah}b_{Ah} + a_{Pw}b_{Ph} + c'_{Ah}$ )	.13	.09	1.41	.16
Wife actor TE ( $a_{Aw}b_{Aw} + a_{Ph}b_{Pw} + c'_{Aw}$ )	.13	.09	1.41	.16
Husband partner TE ( $a_{Aw}b_{Ph} + a_{Ph}b_{Ah} + c'_{Ph}$ )	.15	.09	1.59	.11
Wife partner TE ( $a_{Ah}b_{Pw} + a_{Pw}b_{Aw} + c'_{Pw}$ )	.15	.09	1.59	.11

*Note.* A = actor, P = partner, h = husband, w = wife,  $X$  (initial variable) = perception of fairness in division of childcare labor,  $M$  (mediator variable) = collaborative communication,  $Y$  (outcome variable) = marital quality, IE = indirect effect, TIE = total indirect effect, TE = total effect; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .



Table 14

*Unstandardized Simple Indirect, Direct, Total Indirect, and Total Effect Estimates; Wald statistic values; and p-values for the APIMeM Testing the Effect of Fairness in the Division of Wage Labor on Marital Quality through Collaborative Communication*

Model	Estimate	SE	Wald Statistic	p
Simple Indirect Effects				
Husband actor-actor IE ( $X_h \rightarrow M_h \rightarrow Y_h = a_{Ah}b_{Ah}$ )	.04	.04	1.09	.28
Wife actor-actor IE ( $X_w \rightarrow M_w \rightarrow Y_w = a_{Aw}b_{Aw}$ )	.09*	.04	2.21	.03
Husband partner-partner IE ( $X_h \rightarrow M_w \rightarrow Y_h = a_{Pw}b_{Ph}$ )	.01	.01	1.17	.24
Wife partner-partner IE ( $X_w \rightarrow M_h \rightarrow Y_w = a_{Ph}b_{Pw}$ )	.01	.01	1.17	.24
Husband actor-partner IE ( $X_w \rightarrow M_w \rightarrow Y_h = a_{Aw}b_{Ph}$ )	.03	.02	1.78	.08
Wife actor-partner IE ( $X_h \rightarrow M_h \rightarrow Y_w = a_{Ah}b_{Pw}$ )	.02	.02	1.03	.30
Husband partner-actor IE ( $X_w \rightarrow M_h \rightarrow Y_h = a_{Ph}b_{Ah}$ )	.04	.03	1.28	.20
Wife partner-actor ( $X_h \rightarrow M_w \rightarrow Y_w = a_{Pw}b_{Aw}$ )	.04	.03	1.28	.20
Direct Effects $c'$				
Husband actor ( $X_h \rightarrow Y_h = c'_{Ah}$ )	-.07	.05	-1.59	.11
Wife actor ( $X_w \rightarrow Y_w = c'_{Aw}$ )	-.07	.05	-1.59	.11
Husband partner ( $X_h \rightarrow Y_w = c'_{Ph}$ )	.01	.05	.22	.82
Wife partner ( $X_w \rightarrow Y_h = c'_{Pw}$ )	.01	.05	.22	.82
Total Indirect Effects				
Husband actor TIE ( $a_{Ah}b_{Ah} + a_{Pw}b_{Ph}$ )	.06	.04	1.43	.15
Wife actor TIE ( $a_{Aw}b_{Aw} + a_{Ph}b_{Pw}$ )	.11*	.04	2.51	.01
Husband partner TIE ( $a_{Aw}b_{Ph} + a_{Ph}b_{Ah}$ )	.07*	.03	2.11	.04
Wife partner TIE ( $a_{Ah}b_{Pw} + a_{Pw}b_{Aw}$ )	.05	.03	1.69	.09
Total Effects				
Husband actor TE ( $a_{Ah}b_{Ah} + a_{Pw}b_{Ph} + c'_{Ah}$ )	-.02	.06	-.30	.77
Wife actor TE ( $a_{Aw}b_{Aw} + a_{Ph}b_{Pw} + c'_{Aw}$ )	.03	.06	.56	.58
Husband partner TE ( $a_{Aw}b_{Ph} + a_{Ph}b_{Ah} + c'_{Ph}$ )	.08	.05	1.57	.12
Wife partner TE ( $a_{Ah}b_{Pw} + a_{Pw}b_{Aw} + c'_{Pw}$ )	.06	.05	1.23	.22

*Note.* A = actor, P = partner, h = husband, w = wife,  $X$  (initial variable) = perception of fairness in division of wage labor,  $M$  (mediator variable) = collaborative communication,  $Y$  (outcome variable) = marital quality, IE = indirect effect, TIE = total indirect effect, TE = total effect; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 15

*Unstandardized Effect Estimates for APIMeMs with Fairness in the Division of Labor as Initial Variable, Non-Aggressive Communication as Mediator Variable, and Marital Satisfaction as Outcome Variable*

Effect	Fairness in the Division of Household Labor as Initial Variable			Fairness in the Division of Childcare Labor as Initial Variable			Fairness in the Division of Wage Labor as Initial Variable		
	Estimate	SE	p	Estimate	SE	p	Estimate	SE	p
$X \rightarrow \text{NA Comm. } (M)$									
Husband AE ( $X_h \rightarrow M_h = a_{Ah}$ )	.25*	.11	.03	.11	.09	.24	.16**	.05	.001
Wife AE ( $X_w \rightarrow M_w = a_{Aw}$ )	.11	.12	.35	.11	.09	.24	.16**	.05	.001
Wife to Husband PE ( $X_w \rightarrow M_h = a_{Ph}$ )	.07	.09	.46	.18 <sup>a</sup>	.10	.05	.01	.09	.91
Husband to Wife PE ( $X_h \rightarrow M_w = a_{Pw}$ )	.07	.09	.46	.18 <sup>a</sup>	.10	.05	.01	.09	.91
NA Comm. ( $M$ ) $\rightarrow$ Marital Quality ( $Y$ )									
Husband AE ( $M_h \rightarrow Y_h = b_{Ah}$ )	.32**	.10	.001	.33**	.10	.001	.35***	.10	.000
Wife AE ( $M_w \rightarrow Y_w = b_{Aw}$ )	.32**	.10	.001	.33**	.10	.001	.35***	.10	.000
Wife to Husband PE ( $M_w \rightarrow Y_h = b_{Ph}$ )	.54**	.16	.001	.53**	.16	.001	.33***	.09	.000
Husband to Wife PE ( $M_h \rightarrow Y_w = b_{Pw}$ )	.19	.11	.08	.20	.11	.07	.33***	.09	.000
$X \rightarrow \text{Marital Quality } (Y)$									
Husband AE ( $X_h \rightarrow Y_h = c'_{Ah}$ )	.11	.08	.19	.03	.09	.77	-.06	.05	.23
Wife AE ( $X_w \rightarrow Y_w = c'_{Aw}$ )	.11	.08	.19	.03	.09	.77	-.06	.05	.23
Wife to Husband PE ( $X_w \rightarrow Y_h = c'_{Ph}$ )	.02	.08	.80	.03	.08	.71	.01	.05	.78
Husband to Wife PE ( $X_h \rightarrow Y_w = c'_{Pw}$ )	.02	.08	.80	.03	.08	.71	.01	.05	.78

*Note.* NA Comm. = non-aggressive communication; AE = actor effect, PE = partner effect;  $X$  = initial variable,  $M$  = mediator variable,  $Y$  = outcome variable;  $h$  = husband,  $w$  = wife;  $SE$  = standard error. <sup>a</sup> = approaching significance, \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 16

*Unstandardized Simple Indirect, Direct, Total Indirect, and Total Effect Estimates; Wald statistic values; and p-values for the APIMeM Testing the Effect of Fairness in the Division of Household Labor on Marital Quality through Non-Aggressive Communication*

Model	Estimate	SE	Wald Statistic	p
Simple Indirect Effects				
Husband actor-actor IE ( $X_h \rightarrow M_h \rightarrow Y_h = a_{Ah}b_{Ah}$ )	.08	.04	1.86	.06
Wife actor-actor IE ( $X_w \rightarrow M_w \rightarrow Y_w = a_{Aw}b_{Aw}$ )	.04	.04	.89	.37
Husband partner-partner IE ( $X_h \rightarrow M_w \rightarrow Y_h = a_{Pw}b_{Ph}$ )	.04	.05	.72	.47
Wife partner-partner IE ( $X_w \rightarrow M_h \rightarrow Y_w = a_{Ph}b_{Pw}$ )	.01	.02	.67	.50
Husband actor-partner IE ( $X_w \rightarrow M_w \rightarrow Y_h = a_{Aw}b_{Ph}$ )	.06	.07	.91	.37
Wife actor-partner IE ( $X_h \rightarrow M_h \rightarrow Y_w = a_{Ah}b_{Pw}$ )	.05	.03	1.35	.18
Husband partner-actor IE ( $X_w \rightarrow M_h \rightarrow Y_h = a_{Ph}b_{Ah}$ )	.02	.03	.72	.47
Wife partner-actor ( $X_h \rightarrow M_w \rightarrow Y_w = a_{Pw}b_{Aw}$ )	.02	.03	.72	.47
Direct Effects $c'$				
Husband actor ( $X_h \rightarrow Y_h = c'_{Ah}$ )	.11	.08	1.29	.20
Wife actor ( $X_w \rightarrow Y_w = c'_{Aw}$ )	.11	.08	1.29	.20
Husband partner ( $X_h \rightarrow Y_w = c'_{Ph}$ )	.02	.08	.20	.84
Wife partner ( $X_w \rightarrow Y_h = c'_{Pw}$ )	.02	.08	.20	.84
Total Indirect Effects				
Husband actor TIE ( $a_{Ah}b_{Ah} + a_{Pw}b_{Ph}$ )	.11	.06	1.94	.052
Wife actor TIE ( $a_{Aw}b_{Aw} + a_{Ph}b_{Pw}$ )	.05	.04	1.16	.25
Husband partner TIE ( $a_{Aw}b_{Ph} + a_{Ph}b_{Ah}$ )	.08	.07	1.20	.23
Wife partner TIE ( $a_{Ah}b_{Pw} + a_{Pw}b_{Aw}$ )	.07	.04	1.60	.11
Total Effects				
Husband actor TE ( $a_{Ah}b_{Ah} + a_{Pw}b_{Ph} + c'_{Ah}$ )	.22*	.09	2.35	.02
Wife actor TE ( $a_{Aw}b_{Aw} + a_{Ph}b_{Pw} + c'_{Aw}$ )	.16	.09	1.81	.07
Husband partner TE ( $a_{Aw}b_{Ph} + a_{Ph}b_{Ah} + c'_{Ph}$ )	.10	.10	1.03	.30
Wife partner TE ( $a_{Ah}b_{Pw} + a_{Pw}b_{Aw} + c'_{Pw}$ )	.09	.09	1.02	.31

*Note.* A = actor, P = partner, h = husband, w = wife,  $X$  (initial variable) = perception of fairness in division of household labor,  $M$  (mediator variable) = non-aggressive communication,  $Y$  (outcome variable) = marital quality, IE = indirect effect, TIE = total indirect effect, TE = total effect; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 17

*Unstandardized Simple Indirect, Direct, Total Indirect, and Total Effect Estimates; Wald statistic values; and p-values for the APIMeM Testing the Effect of Fairness in the Division of Childcare Labor on Marital Quality through Non-Aggressive Communication*

Model	Estimate	SE	Wald Statistic	p
Simple Indirect Effects				
Husband actor-actor IE ( $X_h \rightarrow M_h \rightarrow Y_h = a_{Ah}b_{Ah}$ )	.04	.03	1.11	.27
Wife actor-actor IE ( $X_w \rightarrow M_w \rightarrow Y_w = a_{Aw}b_{Aw}$ )	.04	.03	1.11	.27
Husband partner-partner IE ( $X_h \rightarrow M_w \rightarrow Y_h = a_{Pw}b_{Ph}$ )	.10	.06	1.68	.09
Wife partner-partner IE ( $X_w \rightarrow M_h \rightarrow Y_w = a_{Ph}b_{Pw}$ )	.04	.03	1.31	.19
Husband actor-partner IE ( $X_w \rightarrow M_w \rightarrow Y_h = a_{Aw}b_{Ph}$ )	.06	.05	1.13	.26
Wife actor-partner IE ( $X_h \rightarrow M_h \rightarrow Y_w = a_{Ah}b_{Pw}$ )	.02	.02	.97	.33
Husband partner-actor IE ( $X_w \rightarrow M_h \rightarrow Y_h = a_{Ph}b_{Ah}$ )	.06	.04	1.68	.09
Wife partner-actor ( $X_h \rightarrow M_w \rightarrow Y_w = a_{Pw}b_{Aw}$ )	.06	.04	1.68	.09
Direct Effects $c'$				
Husband actor ( $X_h \rightarrow Y_h = c'_{Ah}$ )	.03	.09	.29	.77
Wife actor ( $X_w \rightarrow Y_w = c'_{Aw}$ )	.03	.09	.29	.77
Husband partner ( $X_h \rightarrow Y_w = c'_{Ph}$ )	.03	.08	.37	.71
Wife partner ( $X_w \rightarrow Y_h = c'_{Pw}$ )	.03	.08	.37	.71
Total Indirect Effects				
Husband actor TIE ( $a_{Ah}b_{Ah} + a_{Pw}b_{Ph}$ )	.13*	.06	2.30	.02
Wife actor TIE ( $a_{Aw}b_{Aw} + a_{Ph}b_{Pw}$ )	.07	.04	1.86	.06
Husband partner TIE ( $a_{Aw}b_{Ph} + a_{Ph}b_{Ah}$ )	.12*	.05	2.19	.03
Wife partner TIE ( $a_{Ah}b_{Pw} + a_{Pw}b_{Aw}$ )	.08*	.04	2.15	.03
Total Effects				
Husband actor TE ( $a_{Ah}b_{Ah} + a_{Pw}b_{Ph} + c'_{Ah}$ )	.16	.10	1.67	.10
Wife actor TE ( $a_{Aw}b_{Aw} + a_{Ph}b_{Pw} + c'_{Aw}$ )	.10	.09	1.13	.26
Husband partner TE ( $a_{Aw}b_{Ph} + a_{Ph}b_{Ah} + c'_{Ph}$ )	.15	.09	1.63	.10
Wife partner TE ( $a_{Ah}b_{Pw} + a_{Pw}b_{Aw} + c'_{Pw}$ )	.11	.09	1.33	.18

*Note.* A = actor, P = partner, h = husband, w = wife,  $X$  (initial variable) = perception of fairness in division of childcare labor,  $M$  (mediator variable) = non-aggressive communication,  $Y$  (outcome variable) = marital quality, IE = indirect effect, TIE = total indirect effect, TE = total effect; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 18

*Unstandardized Simple Indirect, Direct, Total Indirect, and Total Effect Estimates; Wald statistic values; and p-values for the APIMeM Testing the Effect of Fairness in the Division of Wage Labor on Marital Quality through Non-Aggressive Communication*

Model	Estimate	SE	Wald Statistic	p
Simple Indirect Effects				
Husband actor-actor IE ( $X_h \rightarrow M_h \rightarrow Y_h = a_{Ah}b_{Ah}$ )	.06*	.02	2.46	.01
Wife actor-actor IE ( $X_w \rightarrow M_w \rightarrow Y_w = a_{Aw}b_{Aw}$ )	.06*	.02	2.46	.01
Husband partner-partner IE ( $X_h \rightarrow M_w \rightarrow Y_h = a_{Pw}b_{Ph}$ )	.00	.02	.11	.91
Wife partner-partner IE ( $X_w \rightarrow M_h \rightarrow Y_w = a_{Ph}b_{Pw}$ )	.00	.02	.11	.91
Husband actor-partner IE ( $X_w \rightarrow M_w \rightarrow Y_h = a_{Aw}b_{Ph}$ )	.05*	.02	2.43	.02
Wife actor-partner IE ( $X_h \rightarrow M_h \rightarrow Y_w = a_{Ah}b_{Pw}$ )	.05*	.02	2.43	.02
Husband partner-actor IE ( $X_w \rightarrow M_h \rightarrow Y_h = a_{Ph}b_{Ah}$ )	.00	.02	.11	.91
Wife partner-actor ( $X_h \rightarrow M_w \rightarrow Y_w = a_{Pw}b_{Aw}$ )	.00	.02	.11	.91
Direct Effects $c'$				
Husband actor ( $X_h \rightarrow Y_h = c'_{Ah}$ )	-.06	.05	-1.20	.23
Wife actor ( $X_w \rightarrow Y_w = c'_{Aw}$ )	-.06	.05	-1.20	.23
Husband partner ( $X_h \rightarrow Y_w = c'_{Ph}$ )	.01	.05	.28	.78
Wife partner ( $X_w \rightarrow Y_h = c'_{Pw}$ )	.01	.05	.28	.78
Total Indirect Effects				
Husband actor TIE ( $a_{Ah}b_{Ah} + a_{Pw}b_{Ph}$ )	.06*	.03	2.30	.02
Wife actor TIE ( $a_{Aw}b_{Aw} + a_{Ph}b_{Pw}$ )	.06*	.03	2.30	.02
Husband partner TIE ( $a_{Aw}b_{Ph} + a_{Ph}b_{Ah}$ )	.06*	.03	2.19	.03
Wife partner TIE ( $a_{Ah}b_{Pw} + a_{Pw}b_{Aw}$ )	.06*	.03	2.19	.03
Total Effects				
Husband actor TE ( $a_{Ah}b_{Ah} + a_{Pw}b_{Ph} + c'_{Ah}$ )	.00	.05	.05	.96
Wife actor TE ( $a_{Aw}b_{Aw} + a_{Ph}b_{Pw} + c'_{Aw}$ )	.00	.05	.05	.96
Husband partner TE ( $a_{Aw}b_{Ph} + a_{Ph}b_{Ah} + c'_{Ph}$ )	.07	.05	1.48	.14
Wife partner TE ( $a_{Ah}b_{Pw} + a_{Pw}b_{Aw} + c'_{Pw}$ )	.07	.05	1.48	.14

*Note.* A = actor, P = partner, h = husband, w = wife,  $X$  (initial variable) = perception of fairness in division of wage labor,  $M$  (mediator variable) = non-aggressive communication,  $Y$  (outcome variable) = marital quality, IE = indirect effect, TIE = total indirect effect, TE = total effect; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

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## APPENDIX A: IRB Approval



3/6/2013  
HSCL #20712

Kristine Grill  
COMS  
102 Bailey

The Human Subjects Committee, Lawrence Campus (HSCL) has received your response to its expedited review of your research project

20712 Grill/Woszidlo (COMS) The effects of collaborative and argumentative communication on the relationship between division of labor(s) and marital quality for dual-earner couples

and approved this project under the expedited procedure provided in 45 CFR 46.110 (f) (7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. As described, the project complies with all requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Since your research presents no risk to participants and involves no procedures for which written consent is normally required outside of the research context HSCL may waive the requirement for a signed consent form (45 CFR 46.117 (c) (2)). Your information statement meets HSCL requirements. The Office for Human Research Protections requires that your information statement must include the note of HSCL approval and expiration date, which has been entered on the form sent back to you with this approval.

1. At designated intervals until the project is completed, a Project Status Report must be returned to the HSCL office.
2. Any significant change in the experimental procedure as described should be reviewed by this Committee prior to altering the project.
3. Notify HSCL about any new investigators not named in original application. Note that new investigators must take the online tutorial at [https://rgs.drupal.ku.edu/human\\_subjects\\_compliance\\_training](https://rgs.drupal.ku.edu/human_subjects_compliance_training).
4. Any injury to a subject because of the research procedure must be reported to the Committee immediately.
5. When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity. If you use a signed consent form, provide a copy of the consent form to subjects at the time of consent.
6. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.

Please inform HSCL when this project is terminated. You must also provide HSCL with an annual status report to maintain HSCL approval. Unless renewed, approval lapses one year after approval date. If your project receives funding which requests an annual update approval, you must request this from HSCL one month prior to the annual update. Thanks for your cooperation. If you have any questions, please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Stephanie Dyson Elms'.

Stephanie Dyson Elms  
Coordinator  
Human Subjects Committee Lawrence

cc: Alesia Woszidlo

## APPENDIX B: Subject Consent Forms

Approved by the Human Subjects Committee University of  
Kansas, Lawrence Campus (HSCL). Approval expires one  
year from 3/6/2013. HSCL # 20712

### Information Statement

The Department of Communication Studies at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time without penalty.

We are conducting this study to better understand the relationships between perceptions of fairness in the division of wage, household and childcare labor, marital satisfaction, marital quality, and positive communication behaviors. This will entail your completion of an online survey. Your participation is expected to take approximately 30 minutes to complete. The content of the survey should cause no more discomfort than you would experience in your everyday life.

Although participation may not benefit you directly, we believe that the information obtained from this study will help us gain a better understanding of how communicative behaviors affect the relationship between the different types of labor you and your spouse complete on a daily basis (e.g., wage labor, household labor, and childcare labor) and the marital outcomes you report. Your participation is solicited, although strictly voluntary. Your name will not be associated in any way with the research findings. Your identifiable information will not be shared unless (a) it is required by law or university policy, or (b) you give written permission. All names, email addresses, and IP addresses are collected solely to enable students to receive course credit for their participation in this research. Once student credit has been awarded, all identifying information will be deleted.

Every effort will be made to keep all information provided confidential. It is possible, however, with internet communication, that through intent or accident someone other than the intended recipient may see your response.

If you would like additional information concerning this study before or after it is completed, please feel free to contact us by phone or mail.

Completion of the survey indicates your willingness to take part in this study and that you are at least 18 years old. If you have any additional questions about your rights as a research participant, you may call (785) 864-7429 or write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, email [irb@ku.edu](mailto:irb@ku.edu).

Sincerely,

Kristine Grill  
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## **APPENDIX C: Study Instrumentation**

### **Student Referral Survey**

Thank you for referring a couple to this research study!

Before you complete the following survey, please make sure you have asked the couple you are referring for their permission to share their names and email addresses with me.

The first set of questions is about you. I am asking these questions so you can receive credit for this study.

1. What is **YOUR** FIRST name?
2. What is **YOUR** LAST name?
3. What is **YOUR** email address?
4. For what course are you completing this study? (e.g., COMS 130, COMS 244)
5. What is the LAST name of your instructor?

The second set of questions is about the couple you are referring. I will be emailing these individuals the link to the survey so I do need names and email addresses.

6. What is the name of the HUSBAND you are referring?
7. What is HIS email address?
8. What is the name of the WIFE you are referring?
9. What is HER email address?

Thank you again for referring a couple to this survey. I will be contacting the couple within the next two days. Once both individuals have completed the study, I will email you to let you know they are done. Thanks!

## Participant Survey Questions

### Demographics

Please answer the following questions:

1. The email you received with a link to this survey also included a STUDY ID. What was your STUDY ID?
2. What are the first two letters of YOUR FIRST NAME? (e.g., if your name were Kris Grill, you would enter "KR")
3. What are the first two letters of YOUR LAST NAME? (e.g., if your name were Kris Grill, you would enter "GR")
4. What are the first two letters of YOUR SPOUSE'S FIRST NAME? (e.g., if your spouse's name was Pete Jones, you would enter "PE")
5. What are the first two letters of YOUR SPOUSE'S LAST NAME? (e.g., if your spouse's name was Pete Jones, you would enter "JO")
6. What is your house number? (e.g., if you lived at 1440 Main St., you would enter "1440")
7. What year were you born?
8. What is your sex?
9. On what date were you married (mm/dd/yyyy)?
10. Have you ever been divorced?
11. Have your parents ever been divorced?
12. If yes, how old were you when your parents divorced?
13. What is the highest level of education you have completed?
14. With which ethnic or racial group do you identify?
15. What is you and your spouse's combined annual household income?
16. What is your annual income?
17. How many children are living in your home?
18. Please indicate the age of each child living in your home. (If you have more than 10 children, please only include the oldest 10 children living in the home.)
19. Please indicate the sex of each child living in your home. (If you have more than 10 children, please only include the oldest 10 children living in the home.)
20. What is your employment status?
21. On average, how many hours per week do you work?
22. Please indicate your occupation.
23. Where are you employed? (U.S. Census)
24. What shift do you work?

## Hours of Labor

There are many different types of labor that have to be performed to provide for a family. Please answer the following questions concerning the amount of time you and your spouse spend engaged in wage, household, and childcare labor.

### Wage Labor

In order to earn a living wage, individuals must engage in paid labor. Paid labor encompasses any activities that your employing organization pays you to perform, regardless of where you perform these tasks. When thinking of paid labor:

- a. How many hours per week do you spend engaged in paid labor?
- b. How many hours per week does your partner spend engaged in paid labor?

### Household Labor

In order to provide for one's family, individuals must also engage in household labor. Household labor encompasses activities such as cooking, cleaning, shopping, lawn maintenance, car maintenance, and paying bills. Household labor does not include playing with and cleaning children, although it would include cooking a meal for a child and cleaning up a mess the child made. When thinking of household labor:

- a. How many hours per week do you spend engaged in household labor?
- b. How many hours per week does your partner spend engaged in household labor?

### Childcare Labor

In order to provide for one's family, individuals must also engage in childcare labor. Childcare labor encompasses activities such as, playing with children, bathing children, reading to children, helping children with homework, and changing diapers. When thinking of childcare labor:

- a. How many hours per week do you spend engaged in childcare labor?
- b. How many hours per week does your partner spend engaged in childcare labor?

### Division of Wage Labor

The following questions are designed to measure how you and your partner divide wage labor responsibilities. Please indicate who typically performs the listed task using the following scale:

- 1 = done most of the time by my partner
- 2 = done more often by my partner than by me
- 3 = done equally often by my partner and me
- 4 = done more often by me than by my partner
- 5 = done most of the time by me

1. Engaging in paid labor
2. I believe my spouse and I fairly divide paid labor responsibilities.<sup>1</sup>

---

<sup>1</sup> This item is measured on a 7-point scale where 1 = *strongly disagree*, and 7 = *strongly agree*.

## Division of Household Labor

The following questions are designed to measure how you and your partner divide household labor responsibilities. Please indicate who typically performs the listed task using the following scale:

- 1 = done most of the time by my partner
- 2 = done more often by my partner than by me
- 3 = done equally often by my partner and me
- 4 = done more often by me than by my partner
- 5 = done most of the time by me
  
- 0 = performed by neither my partner nor me

1. Cooking meals<sup>2</sup>
2. Planning meals
3. Grilling Outdoors
4. Grocery Shopping<sup>2</sup>
5. Doing the Dishes<sup>2</sup>
6. Loading the Dishwasher
7. Unloading the Dishwasher
8. Cleaning the Kitchen<sup>2</sup>
9. Organizing the Kitchen
10. Tidying Up the House (picking up around the house, clothes in the hamper, etc.)<sup>2</sup>
11. Dusting
12. Vacuuming
13. Cleaning the Toilets
14. Cleaning the Shower/Tub/Sink
15. Doing the Laundry<sup>2</sup>
16. Folding the Laundry
17. Ironing Clothes
18. Mowing the Lawn<sup>2</sup>
19. Weeding the Lawn
20. Caring for Plants/Flowers (i.e., gardening)
21. Raking Leaves
22. Shoveling Snow
23. Shopping for Household Goods
24. Paying Bills
25. Car Maintenance
26. Running Errands<sup>2</sup>

---

<sup>2</sup>All these items had an additional item which asked, "I believe my spouse and I fairly divide the responsibility of \_\_\_\_\_." This item is measured on a 7-point scale where 1 = *completely disagree*, and 5 = *completely agree*.

- 27. Making the Bed
- 28. Taking the Trash Out
- 29. Taking the Recycling In/Putting the Recycling Out
- 30. Home Improvement Projects<sup>3</sup>

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<sup>3</sup>All these items had an additional item which asked, "I believe my spouse and I fairly divide the responsibility of \_\_\_\_\_." This item is measured on a 7-point scale where 1 = *completely disagree*, and 5 = *completely agree*.

## Division of Childcare Labor

The following questions are designed to measure how you and your partner divide childcare labor responsibilities. Please indicate who typically performs the listed task using the following scale:

- 1 = done most of the time by my partner
- 2 = done more often by my partner than by me
- 3 = done equally often by my partner and me
- 4 = done more often by me than by my partner
- 5 = done most of the time by me
  
- 0 = performed by neither my partner nor me

1. Feeding children<sup>4</sup>
2. Preparing children's food
3. Changing diapers<sup>4</sup>
4. Getting up at night with infant and toddler children
5. Playing with children<sup>4</sup>
6. Reading to children
7. Helping children complete schoolwork
8. Supervising children<sup>4</sup>
9. Taking children to and from lessons
10. Taking children to and from outings/activities
11. Planning children's outings/activities
12. Supervising children's personal hygiene activities
13. Caring for sick children<sup>4</sup>
14. Teaching children to speak
15. Teaching children about morals
16. Teaching children how to walk/crawl
17. Teaching children their ABCs
18. Teaching children their numbers

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<sup>4</sup> All these items had an additional item which asked, "I believe my spouse and I fairly divide the responsibility of \_\_\_\_\_." This item is measured on a 7-point scale where 1 = *completely disagree*, and 5 = *completely agree*.

## Perceptions of Collaboration Questionnaire (PCQ; Berg, et al., 2011)

The following questions are designed to measure how you and your partner work together to solve every day problems and make decisions. Please respond to each item by indicating the degree to which you agree with the statement. For each question, choose from the following alternatives:

- 1 = strongly disagree
- 2 = disagree
- 3 = neither agree nor disagree
- 4 = agree
- 5 = strongly agree

### Cognitive Compensation

1. I make better decisions when my spouse and I work together.
2. I view working together with my spouse as necessary as it is harder for me to do things by myself.<sup>5</sup>
3. Working together with my spouse is useful as he/she makes up for things that I don't do well.

### Interpersonal Enjoyment

4. I enjoy the support and encouragement I receive when I work together with my spouse.
5. Solving everyday problems and making decisions together with my spouse brings us closer together.
6. I dislike getting my spouse's assistance on everyday tasks as it makes me feel incompetent.<sup>5</sup>

### Frequency

7. My spouse and I always work together to deal with really important household decisions.
8. Nearly every day my spouse and I work together to make everyday decisions.
9. It is rare for my spouse and me to share tasks and make decisions together.

---

<sup>5</sup> These two items were excluded from analyses because their removal resulted in increased scale reliability



### Non-Aggressiveness Communication (Infante & Wigley, 1986)

These items are concerned with how you try to get people to comply with your wishes. Indicate how often each statement is true for you personally when you try to influence other persons. Use the following scale:

- 1 = almost never true
- 2 = rarely true
- 3 = occasionally true
- 4 = often true
- 5 = almost always true

1. I am extremely careful to avoid attacking individuals' intelligence when I attack their ideas.
2. I try very hard to avoid having other people feel bad about themselves when I try to influence them.
3. When others do things I regard as stupid, I try to be extremely gentle with them.
4. I try to make people feel good about themselves even when their ideas are stupid.
5. When people criticize my shortcomings, I take it in good humor and do not try to get back at them.
6. When I dislike individuals greatly, I try not to show it in what I say or how I say it.
7. When I attack persons' ideas, I try not to damage their self-concepts.
8. When I try to influence people, I make a great effort not to offend them.
9. I refuse to participate in arguments when they involve personal attacks.
10. When an argument shifts to personal attacks, I try very hard to change the subject.

### Quality Marriage Index (QMI; Norton, 1983)

Please read the following statements about your marriage. Please respond to each item by indicating the degree to which you agree with the statement. For each question, choose from the following alternatives:

- 1 = strongly disagree
- 2 = disagree
- 3 = somewhat disagree
- 4 = neither agree nor disagree
- 5 = somewhat agree
- 6 = agree
- 7 = strongly agree

1. We have a good marriage.
2. My relationship with my partner is very stable.
3. Our marriage is strong.
4. My relationship with my partner makes me happy.
5. I really feel like *part of a team* with my partner.
6. The degree of happiness, everything considered, in your marriage. <sup>6</sup>

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<sup>6</sup> This variable is not measured on the same scale as items 1-5. This item is measured on a 7-point scale where 1 = *very unhappy*, and 7 = *very happy*.